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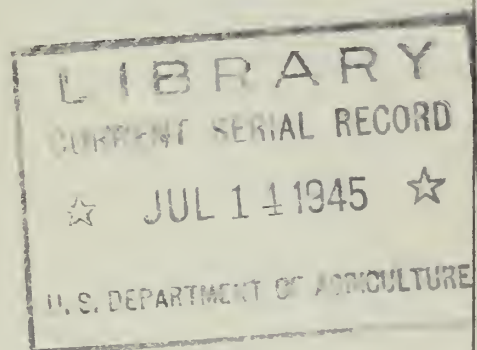
FARM CREDIT ADMINISTRATION  
UNITED STATES DEPARTMENT OF AGRICULTURE  
WASHINGTON, D. C.

# FROZEN FOOD LOCKER PLANTS

Location, Capacity, Rates, And Use

JANUARY 1, 1943

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## SUMMARY

Storing of food in frozen-food locker plants continues to expand. The statistical data on which this report is based was assembled from locker plant operators early in 1943, by the Cooperative Research and Service Division which has conducted similar surveys annually since 1940. Even since this survey the use of lockers for food storage has shown a marked increase. Thus, the rental situation in all plants has improved materially.

This survey was conducted just prior to the wartime rationing program which was put into operation in March and April 1943. Rationing had a marked effect on the public reaction to local food preservation programs, including those based on the use of locker plants. While the survey does not reflect current conditions, it provides a much more accurate picture of normal locker plant operation than one which might be conducted in 1945. As a result, this report should prove useful as a guide to postwar development of locker plants.

It is estimated that the industry will experience a growth during the postwar era that will call for the investment of from 10 to 20 million dollars per year. This publication should provide new investors and their advisors with basic facts on which to plan for this additional capacity.

Although expansion and the building of new plants has been retarded by wartime limitations on materials since May 1942, available data indicate that the total number of plants increased from 4,600 to 5,300 during 1943. Based on the data presented in this study these plants were serving more than 1,500,000 families, about  $7\frac{1}{2}$  million persons, on January 1, 1944. An estimated 600 new plants, plus the expansion of existing ones, were added during 1944.

### NUMBER REPORTING, CAPACITY, AND RENTALS BY STATES AND BY REGIONS

Though the largest number of new plants reporting during 1943 were in the North Central States, the locker plant movement is expanding toward the eastern seaboard and into the Southern States. Thus, the percentage of increase in the number of plants operating was greatest in the South Central and the North Atlantic States. Average locker capacity of plants reporting was larger by 6 percent than that of those reporting in 1942. This percentage of capacity rented was 89 percent of all lockers on January 1, 1943, 14 percent more than the 74.9 percent rented as of January 1, 1942, and 25 percent greater than that reported as of January 1, 1941. The percentage of plant capacity rented was highest in the Western States and lowest in the North Atlantic States. This fact reflects differences in demand and in type of service rendered, as well as in ability to expand locker room capacity.

### AFFILIATION, CAPACITY, AND RENTALS

Of the plants reporting, 40 percent were affiliated with groceries and retail meat markets. Those in the next largest group were connected

with ice and cold storage plants. Those associated with dairy plants were fewest.

Reports filed in 1941, 1942, and 1943 show that the locker departments in ice and cold storage plants or dairies and those operating as separate enterprises increased in size during each of these 3 years, while grocery and meat market locker plants displayed no definite trend. The latter reflects the financial condition as well as the space limitations in most meat market locker plants. Within limits, it may be a measure of interest in further expansion on the part of this group.

#### OWNERSHIP

Ownership of locker plants has changed materially since 1935. Fifty-two percent of the plants reported opened prior to 1936 were corporately owned, while only 11 percent of those opened during 1942 were so owned. On the other hand, individuals owned only 30 percent of the plants opened in 1935 and earlier and 61 percent of the plants opened in 1942. Partnerships increased from 10 to 22 percent during the period. Cooperatively owned plants increased from 8 percent in 1935 to 17 percent of the plants opened in 1937 but declined to only 6 percent of those opened during 1942. These trends may be attributed to decline in locker operation by the corporately owned ice and cold storage industry and to the relatively large number of individually owned meat markets that installed small locker rooms since 1938. These installations are, in turn, the result of equipment sales organization activity and an attempt on the part of meat markets in small towns to protect their business from locker-plant competition.

Corporately owned locker plants had an average capacity of 549 lockers, about twice that of the individually owned plants. This points to the possibility that financing may be a more important factor than the needs of the community in determining the size or the capacity of plants. The small size of individually owned plants may also reflect a lack of confidence in locker plant earning power among individual owners and those from whom they obtain credit. Comparison of rentals by ownership types reveals that cooperatives and partnerships have the highest percentages of their locker capacity rented, while corporations have the lowest.

#### FARM AND NONFARM PATRONAGE

Three-fourths of all locker patrons live on farms. The percentage of farmer patronage shown by the survey was highest in the North Central States, where 79.8 percent of all patrons were farmers. This percentage was lowest in the South Central States, where only 60.9 percent of patrons were farmers.

In some States more than half of the entire farm population use lockers to preserve some of their food supplies.



Analysis of town or nonfarm patron usage, by size of town, indicates that in those towns with a population of 500 or less 23 families use lockers. Assuming that the population of these towns averaged 250 and that each family using the locker consisted of four persons, it might be concluded that almost 40 percent of the people in towns of this size use lockers when they are available; and that in the towns with populations of 500 to 1,000, 16 percent of the people use lockers. During 1941 and 1942 there was an increase in the percentage of plants opened in towns with population in excess of 10,000.

#### PROCESSING SERVICE

Eighty percent of all plants reporting cut and wrapped meats for their patrons. There was some variation between regions; thus, only 66 percent of the plants reporting from the North Atlantic States provided this service, while 94 percent of those plants reporting from the South Atlantic area cut and wrapped meats for patrons. Pork curing is becoming increasingly popular among locker plants and patrons; 39 percent of the plants reporting provided this service. Fifty-five percent of the plants in the South Central States provided curing service, while only 14 percent of those in the North Atlantic States cured pork.

Lard rendering is another service that patrons in pork producing areas are demanding. One-third of all the plants in the North and South Central States supply this service. Livestock slaughtering at the plant is provided by approximately one-fifth of all plants reporting while another 17 percent have facilities near the plant where animals are slaughtered for farmers.

#### RATES

The rates charged for processing and storage are higher than in earlier years. The average annual locker rental rate charged on January 1, 1943, was \$10.13, or 37 cents above the average reported on January 1, 1941. Locker rental rates vary considerably. Plants in the 10 Western States reported an average rate of \$9.17, while those in the South Atlantic States charged \$11.31. Two States, Oregon and Washington, reported rates of \$7.95 and \$7.52, respectively, while West Virginia reported the highest rate of all, \$15. The areas where the development is most recent showed the highest locker rental rates.

Processing rates also increased during the 2 years prior to January 1, 1943. The average charge for chilling, cutting, wrapping, and freezing meats increased from \$1.30 per 100 pounds, as reported on January 1, 1941, to \$1.65 on January 1, 1943. This rate of increase was general and may be attributed largely to increased labor costs. Research in plant operating cost indicates that this service has been provided at less than cost; hence, it was inevitable that some upward adjustment be made. Rates were lowest in Minnesota and South Dakota where charges were \$1.32 and \$1.31, respectively; and highest in Georgia where the average was \$2.58 per 100 pounds.

In the plants where the processing charge included grinding, the rates averaged \$1.87, or 22 cents above the rate where grinding was charged for separately. The practice of making a flat charge to include grinding is becoming more widespread.

Curing rates increased an average of 56 cents per 100 pounds during the 2 years prior to January 1, 1943. The average curing rate was \$3.15 per 100 pounds. Rates were lowest in the North Atlantic area and highest in the Western States. On a State basis the average rate of \$2.45 charged in Georgia was lowest, while the plants in West Virginia and Arizona had the highest, \$5. Forty percent of all plants charged \$3 for curing. The rates for smoking pork ranged from \$1 per 100 pounds to \$5; the average for all plants was \$1.68. Forty-five percent of all plants rendering this service charged \$1 per 100 pounds.

The average charge for lard rendering varied from the low average of \$1.88 per 100 pounds in Ohio to a high of \$5 in Arizona and Mississippi. One-third of all plants rendering this service charged \$2 and another third, \$3.

Fruit and vegetable freezing for patrons is a service that has been provided free in many plants. Other operators have charged low rates to encourage greater use of lockers for the storage of fruits and vegetables. Hence, the rates vary considerably between plants in the same area. The average of \$1.66 per 100 pounds or quarts reported is, therefore, a relatively low rate for the service rendered. Only 242 plants reported processing and packaging service for fruits and vegetables. The average charge among these plants was \$3.66 per 100 pounds.

Generally speaking, rates for processing in the Midwestern States have been lower than the cost of providing the service. On the other hand, the rates charged by some plants in the Eastern and the Southern States may be higher than necessary. The latter may discourage extensive use of the lockers in the South and the East. Competition will probably force those plants charging the higher rates in these States to lower levels in the postwar period.

#### POUNDS OF PRODUCT HANDLED

The number of pounds of product processed per locker is somewhat lower than many have estimated. The average pounds of each product processed per locker in the plants reporting poundage was as follows: Beef, 171; pork, 153; poultry, 10; game, 16; fruits, 18; and vegetables, 14. The combined total of these averages is 382 pounds.

The pounds of beef, pork, poultry, game, fruits, and vegetables processed and stored annually per locker rented varied greatly between regions. The plants in the North Central States processed the largest poundage with an average of 420, while those in the North Atlantic States reported an average of only 241 pounds. In the North Central States, Minnesota plants processed the largest poundage with 505 and



Kansas the least with only 294 pounds per locker. It seems likely that the pounds processed per locker may be related to the rates charged for and the type and number of processing services rendered as well as to the kind of product stored.

The weight of each kind of product processed per locker shows that storage of beef exceeds that of pork. Thus, whereas the per capita consumption of all pork in the United States is normally 17 percent greater than that of beef, locker plants processed 10 percent more beef than pork. This raises the possibility that, as meat freezing becomes more important, beef consumption is likely to increase. Game is apparently an important source of food for locker patrons in Wyoming where they stored an average of 120 pounds of game per locker, or  $2\frac{1}{2}$  times as much game as pork.

The sale of frozen foods processed by commercial packers has increased during the last 5 years. Many locker operators have found that products of the quality, grade, or type demanded by some patrons are not available locally. The reports indicate that beef sales to locker customers average three times greater than pork, or 34 pounds per locker rented. It seems probable that commercial sale of meat through locker plants will expand in the areas where high quality meat is not produced. The locker operator is probably the most logical wholesale outlet for commercially packed frozen products in the small towns.



# FROZEN FOOD LOCKER PLANTS

## JANUARY 1, 1943

By

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Agricultural Economists

Many changes in plant operation have taken place since frozen food lockers first became known in the United States. Since 1935, the number of plants has increased rapidly and the services rendered, the rates charged, type of ownership, size of the plants, and the kinds of products processed for patrons have changed from year to year.

The movement began with a few ice, cold storage, and dairy plants in the West North Central and Pacific Coast States which provided boxes and bins in 15° F. rooms where families could store game and other food products. The service was merely an accommodation to friends, or a means of using surplus storage space or of attracting business to the parent enterprise and was given little care by the management. Foods were not properly prepared or packaged and temperature in the locker room was neither constant nor low enough for such storage. Even as late as the early 1930's, most of the plants did not provide facilities for chilling meats, aging beef and lamb, or processing and packaging the foods. It was inevitable that some of the patrons should blame the method of preservation rather than the specific conditions and, as a result, they were not enthusiastic about the locker system. By the end of 1935 there were only 250 such plants being used by the public in the country.

During the early 1930's a few plants, opened in the West North Central States, included a room for chilling carcasses and aging beef and lamb, a sharp freezer, and meat cutting equipment which could be used by patrons. This type of operation proved unsatisfactory because patrons were careless in handling their own products as well as the equipment in the plant. The sharp freezer and the chill rooms were often overloaded, while at other times they were not used. For these reasons most of these plants later hired the necessary personnel to process and handle meats in the plants for patrons.

### REASONS FOR RAPID RISE OF INTEREST IN LOCKER PLANTS

It was only after plants came to provide the equipment and the personnel for properly handling meats in preparation for storage that the locker system became popular in the United States. Factors other than the addition of chilling, aging, freezing, and meat processing services which caused the rapid growth of the industry after 1935 were:

1. Increasing research work in the field of processing and freezing foods for locker storage by the agricultural experiment stations, the United States Department of Agriculture, and other agencies.



2. Dissemination of information on freezing and processing gleaned from research work and actual locker plant operation by the Agricultural Extension Service, vocational teachers, trade magazines, and locker-plant operators.

3. Addition of supplementary processing services such as pork curing, pork smoking, lard rendering, livestock slaughtering, poultry picking, and vegetable blanching services at the plant.

4. Improvements in refrigeration and its adaptation to small-scale units. Particularly important were improvements in automatic controls and added dependability of relatively small compressors.

5. Equipment and insulation sales organization efforts and educational work.

6. The increased demand and desire, on the part of rural and small town families for better diets, which may be attributed partly to the educational work done by the home demonstration workers of the Agricultural Extension Service and other educational workers in this field.

7. Realization of fundamental economies in this system of preserving home-grown foods for the family. Thus, for the family that had been attempting to preserve fresh meat on the farm, the local locker plant eliminated the losses resulting from a lack of controlled temperatures. For the family in the habit of purchasing fresh meat at the retail butcher shop, the locker provided the means of saving some of the costs involved in transporting live animals to distant processing centers and moving the meat back through regular meat distribution channels.

8. Many locker patrons in producing areas had opportunity to obtain meat better suited to their desires and pocketbooks than that available in the average small-town meat market.

Though accurate information on the opening date for all locker plants is not available, the following data and figures 1, 2, 3, and 4, based on the reports on file in the Cooperative Research and Service Division give a general picture of the growth in the industry:

Plants operating as of January 1	Number
1936 .....	250
1937 .....	450
1938 .....	800
1939 .....	1,400
1940 .....	2,100
1941 .....	2,900
1942 .....	3,800
1943 .....	4,600
1944 .....	5,300

FIGURE 1  
FROZEN FOOD LOCKER PLANTS OPERATING  
JANUARY 1, 1936

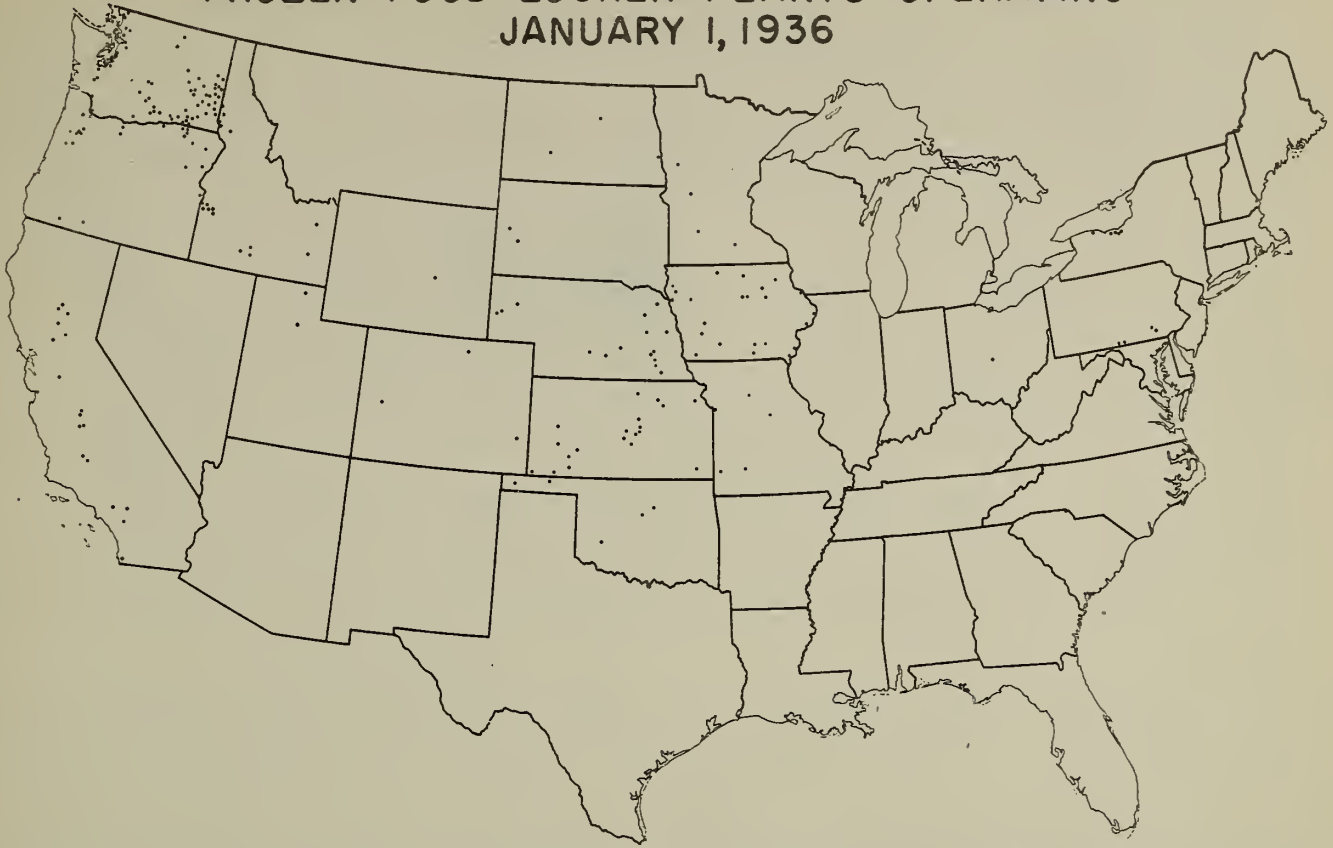


FIGURE 2  
FROZEN FOOD LOCKER PLANTS OPERATING  
JANUARY 1, 1938

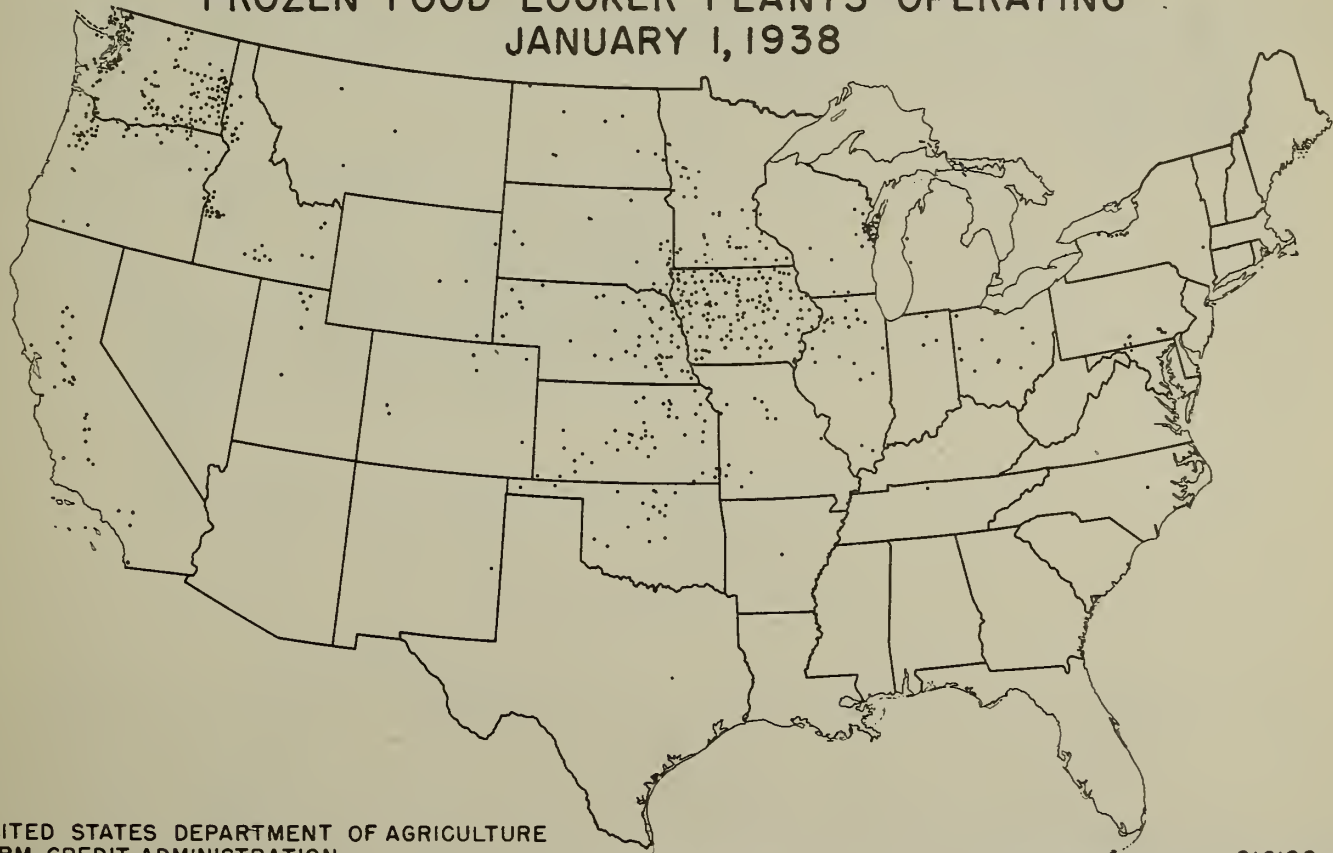


FIGURE 3

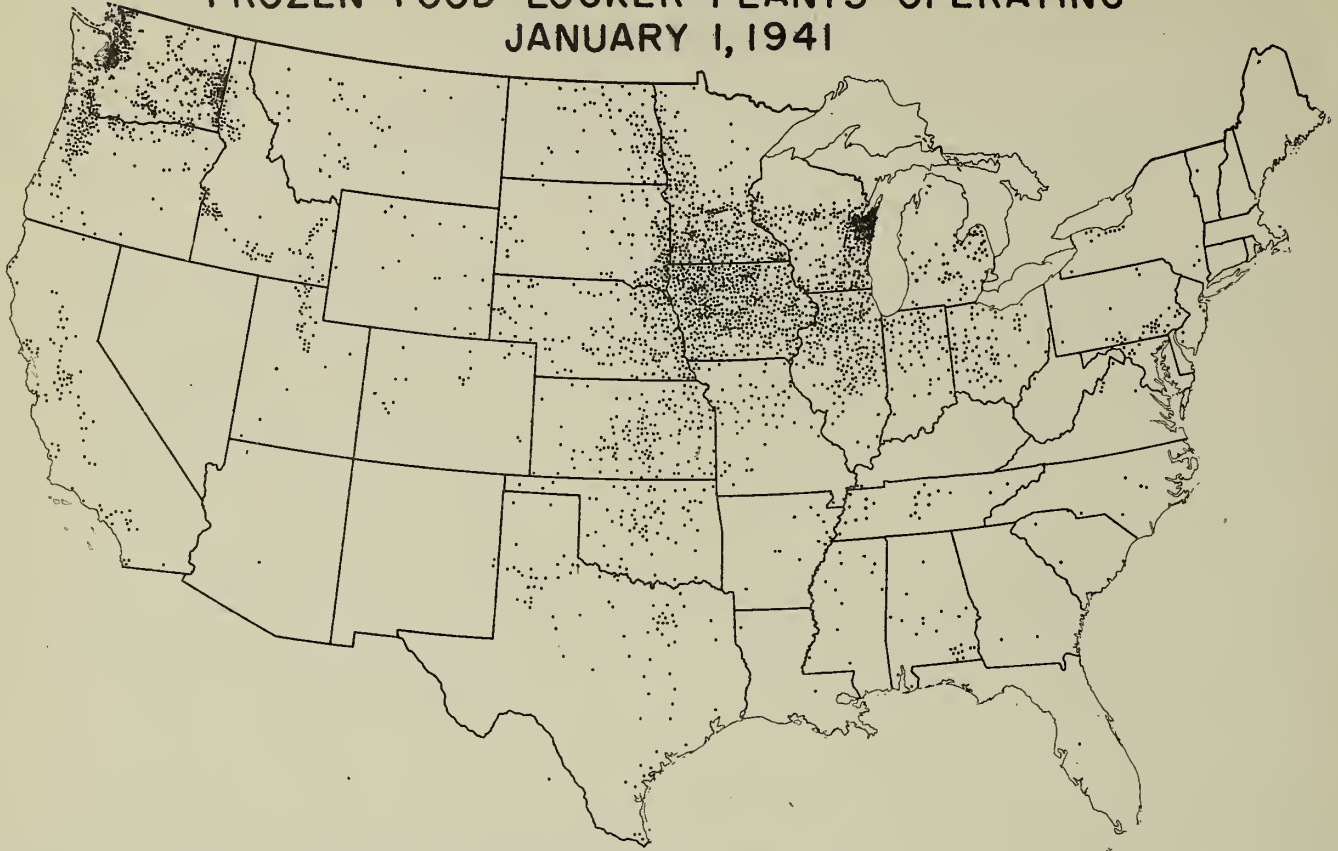
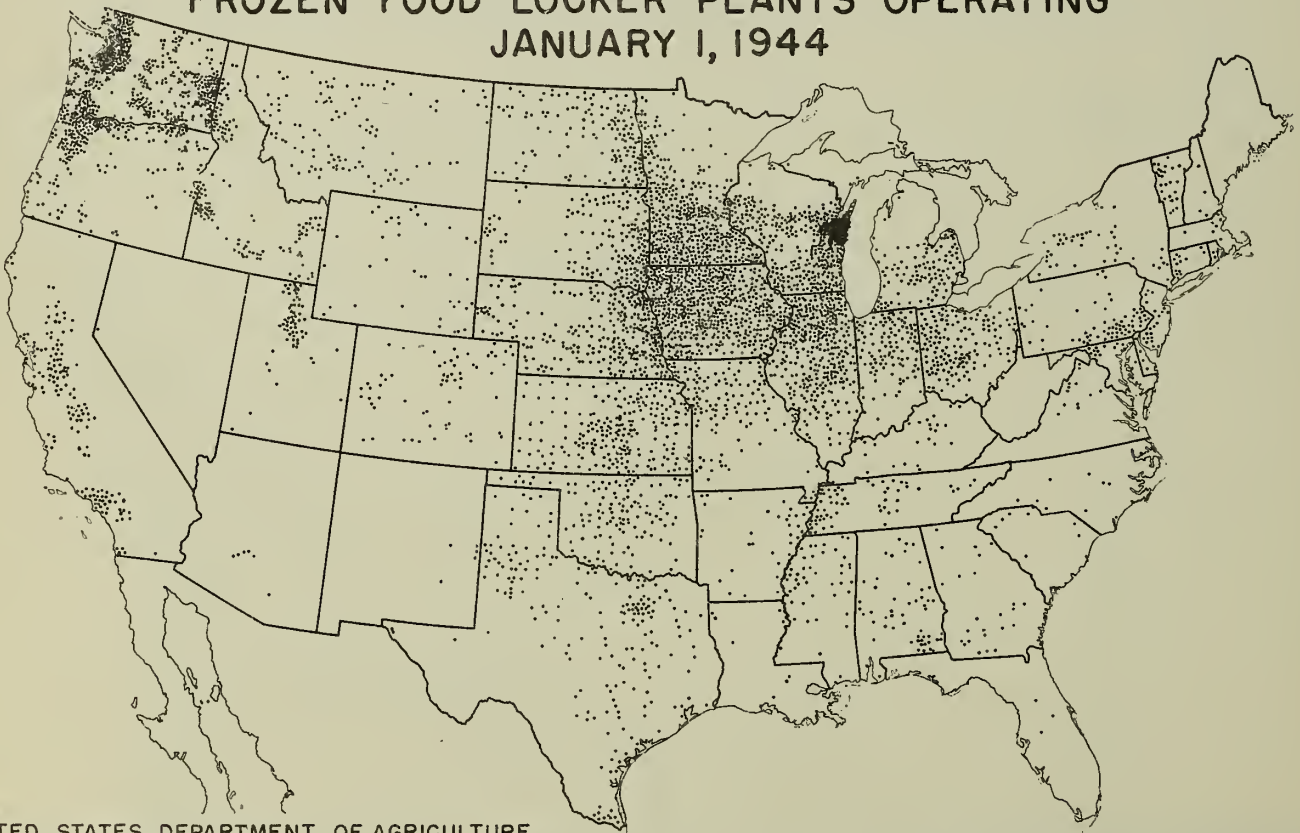
**FROZEN FOOD LOCKER PLANTS OPERATING  
JANUARY 1, 1941**

FIGURE 4

**FROZEN FOOD LOCKER PLANTS OPERATING  
JANUARY 1, 1944**



## SCOPE AND OBJECTIVES OF THE SURVEY

The survey of frozen food locker plant operation made annually since 1940 by the Cooperative Research and Service Division attempts to record information showing trends in the development of the industry that may have a bearing on its future part in cooperative food processing and preservation. Data collected from plant operators early in 1943 covered:

1. Date of opening the plant.
2. Size of town where located.
3. Ownership.
4. Type of enterprise with which the locker plant is affiliated.
5. Capacity of plant in terms of lockers.
6. Number of farm and nonfarm patrons.
7. Locker rental and processing rates charged.
8. Processing services performed for patrons by plant personnel.
9. Pounds of each kind of product processed.
10. Pounds of commercially packed products sold to patrons.

Of the 4,600 schedules sent out to operators, 2,200 were returned. Of these, 1,875 provided enough information to be useful for analysis. As in the earlier surveys, the data on capacity and rentals were analyzed to evaluate the relative success of locker plants by areas, year opened, affiliation, and ownership; as well as the number of affiliated projects and the number of plants operated as locker enterprises alone. Farm and nonfarm patronage were also compared by areas, types of enterprise, and size of town where located.

Data on processing services were collected and examined to obtain the percentage of plants that cut, wrap, or freeze meat and the percentage that grind, cure, smoke, render, and slaughter for patrons.

Average pounds of each major product handled was also obtained and the pounds of commercially packed products sold.

In general, the objective of this survey is to set forth statistically general facts regarding the nature of the development as of January 1, 1943, and to evaluate the statistical information of interest to present and prospective operators of such plants, as well as others interested in this development.

### LOCKER PLANTS REPORTING, THEIR CAPACITY, AND PERCENTAGE OF CAPACITY RENTED

#### NUMBER OF PLANTS REPORTING

All plants opened during 1935 and prior to that year are grouped in column 1 of table 1. The decline in the number of reports received from those plants that were opened during 1941 should not be interpreted as a decline in the number of plants opened, as the records indicate that there were more plants opened during 1941 than during any

Table 1. - Number of frozen-food locker plants reporting,  
by State and year opened

STATE AND REGION	PLANTS OPENED IN								TOTAL ALL PLANTS
	1935 AND PRIOR	1936	1937	1938	1939	1940	1941	1942	
Illinois.....	-	-	7	23	24	21	19	10	104
Indiana.....	-	-	-	5	8	18	6	4	41
Iowa.....	9	19	34	43	35	29	18	3	190
Kansas.....	8	2	8	12	8	13	16	9	76
Michigan.....	-	-	-	6	5	10	8	3	32
Minnesota.....	1	9	16	22	34	24	9	3	118
Missouri.....	3	2	3	4	4	10	12	5	43
Nebraska.....	8	10	6	18	10	11	14	5	82
North Dakota.....	2	2	2	6	7	16	2	4	41
Ohio.....	-	-	5	5	3	7	8	9	37
South Dakota.....	1	5	1	6	9	19	12	5	58
Wisconsin.....	4	5	12	23	43	41	26	4	158
North Central States.	36	54	94	173	190	219	150	64	980
Arizona.....	-	-	-	-	-	-	1	-	1
California.....	13	-	2	5	6	11	12	7	56
Colorado.....	3	2	-	1	2	4	3	-	15
Idaho.....	8	5	6	4	6	10	6	1	46
Montana.....	1	-	-	5	10	9	5	1	31
New Mexico.....	-	-	-	-	-	-	1	-	1
Oregon.....	9	6	7	10	19	11	5	1	68
Utah.....	2	-	3	2	4	6	2	-	19
Washington.....	38	9	16	19	14	24	15	7	142
Wyoming.....	1	-	1	-	2	4	2	-	10
Western States.....	75	22	35	46	63	79	52	17	389
Alabama.....	-	-	-	-	2	4	3	-	9
Arkansas.....	-	-	-	-	4	3	2	1	10
Kentucky.....	-	-	-	-	-	2	1	1	4
Louisiana.....	-	-	-	-	-	-	1	-	1
Mississippi.....	-	-	-	-	1	-	10	-	11
Oklahoma.....	1	3	4	5	6	6	7	2	34
Tennessee.....	-	-	-	1	1	1	-	1	4
Texas.....	-	-	-	1	6	20	5	4	36
South Central States.	1	3	4	7	20	36	29	9	109
New Jersey.....	-	-	-	1	1	1	1	-	4
New York.....	2	2	1	-	2	-	2	6	15
Pennsylvania.....	3	1	2	3	6	1	5	1	22
Vermont.....	-	-	-	-	1	-	-	1	2
North Atlantic States	5	3	3	4	10	2	8	8	43
Florida.....	-	-	-	-	1	-	-	-	1
Georgia.....	-	-	-	-	1	-	1	2	4
Maryland.....	-	-	-	-	-	1	-	1	2
North Carolina.....	-	-	-	-	1	-	-	-	1
South Carolina.....	-	-	-	-	-	-	-	1	1
Virginia.....	-	1	-	1	-	-	2	-	4
South Atlantic States	-	1	-	1	3	1	3	4	13
UNITED STATES.....	117	83	136	231	286	337	242	102	1,534



previous year. The small number of plants reporting as opened during 1942 is due in part to a general decline in the actual number of plants opened. This decline was, in turn, the result of restrictions placed on the sale of refrigeration equipment by the War Production Board during May 1942.

#### LOCKER CAPACITY

Table 2 indicates the average capacity of the plants shown in table 1, by State and year of opening. The average capacity of 347 lockers per plant represents an increase of approximately 6 percent over the average capacity of 328 and 327 reported in the 1941 and 1942 surveys, respectively. This increased capacity is the result of expansion in existing plants during the years 1941 and 1942 and of the fact that the plants opened during 1942 were larger than those opened during the 2 previous years.

Average capacity by regions shows the North Atlantic leading in plant size with 43 plants reporting an average capacity of 653 lockers. The South Atlantic States had the smallest capacity, an average of 294 lockers for 13 plants. The low average in the South Atlantic States is due largely to the small size of the plants operated in connection with the departments of vocational agriculture in Georgia. On a State basis, Pennsylvania reports the largest plants in the United States with an average capacity of 842 lockers. Among the North Central States, Ohio has the largest plants and South Dakota, the smallest.

#### PERCENTAGE OF CAPACITY RENTED

The percentage of locker capacity rented on January 1, 1943, in the 1,534 plants reporting on this item is shown in table 3 by States, regions, and year opened. The average of 89 percent of their total locker capacity rented is the highest percentage reported in any survey. (See figure 5.) Previous surveys showed that the percentage of capacity rented in 1940 was 64 percent and in 1941, 75 percent. This increase in the percentage of locker capacity rented indicates the tremendous increase in the demand for locker storage space. This demand resulted from the increased emphasis on some food preservation during 1942 and to some extent the decline in deliveries of food from commercial channels to the smaller towns where a large proportion of the locker plants are located. It was not the result of food rationing, as the rationing program was not inaugurated until the spring of 1943.

With the exception of the plants opened during 1935 or earlier, there is little difference in the percentage of capacity rented for the plants opened in the different years. This is in marked contrast to earlier surveys which showed that the plants which had been opened 1, 2, and 3 years had not been able to rent all their lockers. The relatively low percentage (81 percent) of plant capacity rented in the 117 plants opened during 1935 or earlier is due in part to their large capacity, 663 lockers (see table 2). This relatively large capacity, in turn, may be attributed to the fact that a large percentage of these older



Table 2. - Average locker capacity of frozen-food locker plants, by State and year of opening

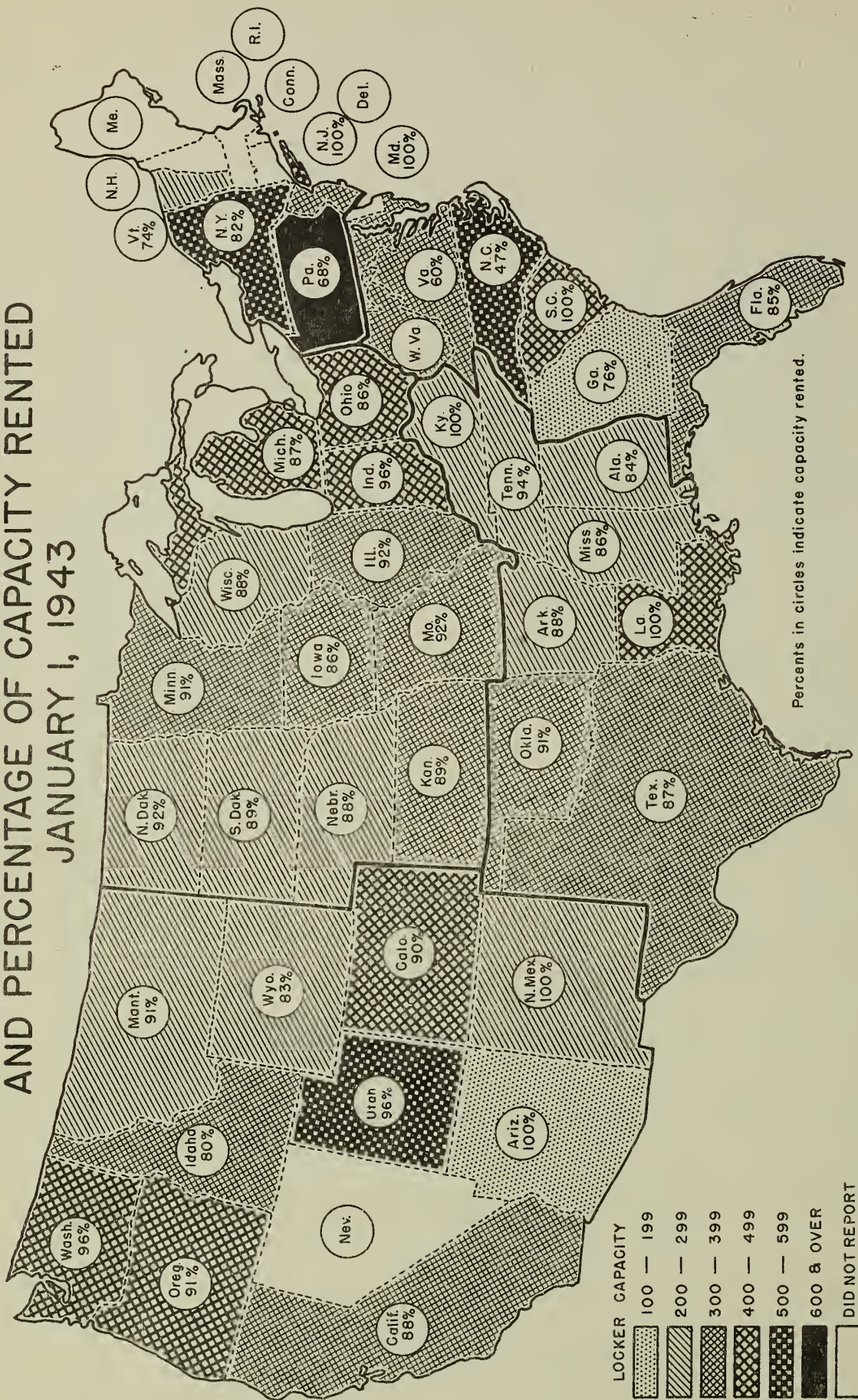
STATE AND REGION	AVERAGE CAPACITY, JANUARY 1, 1943, OF PLANTS OPENED IN								AVERAGE CAPACITY OF ALL PLANTS
	1935 AND PRIOR	1936	1937	1938	1939	1940	1941	1942	
Lockers									
Illinois.....	-	-	689	418	424	348	319	288	393
Indiana.....	-	-	-	1,055	443	366	357	260	453
Iowa.....	767	420	358	337	253	236	224	269	327
Kansas.....	290	670	374	376	331	308	259	297	324
Michigan.....	-	-	-	565	283	472	298	403	410
Minnesota.....	569	441	391	341	256	280	333	114	314
Missouri.....	1,122	502	199	448	301	293	226	311	353
Nebraska.....	406	289	345	288	223	180	151	175	251
North Dakota.....	457	225	296	258	217	225	202	240	244
Ohio.....	-	-	685	897	443	386	432	288	486
South Dakota.....	238	342	235	294	174	194	144	175	208
Wisconsin.....	291	339	249	250	267	244	256	338	260
North Central States.	520	390	385	377	288	279	259	268	319
Arizona.....	-	-	-	-	-	-	163	-	163
California.....	434	-	229	420	417	384	271	442	380
Colorado.....	800	416	-	266	590	424	222	-	469
Idaho.....	821	286	197	202	219	250	258	200	338
Montana.....	800	-	-	349	289	218	285	150	289
New Mexico.....	-	-	-	-	-	-	296	-	296
Oregon.....	908	503	428	348	281	292	464	205	423
Utah.....	2,388	-	734	374	296	273	291	-	586
Washington.....	553	339	421	420	340	289	376	258	408
Wyoming.....	250	-	192	-	188	286	255	-	247
Western States.....	662	379	393	373	310	295	315	321	395
Alabama.....	-	-	-	-	235	189	257	-	222
Arkansas.....	-	-	-	-	344	210	159	400	273
Kentucky.....	-	-	-	-	-	149	334	372	251
Louisiana.....	-	-	-	-	-	-	475	-	475
Mississippi.....	-	-	-	-	480	-	222	-	246
Oklahoma.....	80	294	495	406	272	292	258	240	313
Tennessee.....	-	-	-	102	300	400	-	114	229
Texas.....	-	-	-	248	394	348	443	461	379
South Central States.	80	294	495	340	331	309	281	357	313
New Jersey.....	-	-	-	270	500	125	470	-	341
New York.....	265	560	300	-	602	-	680	526	511
Pennsylvania.....	2,883	400	590	438	771	500	326	215	842
Vermont.....	-	-	-	-	250	-	-	260	255
North Atlantic States	1,836	507	493	396	658	312	432	454	653
Florida.....	-	-	-	-	300	-	-	-	300
Georgia.....	-	-	-	-	45	-	170	129	118
Maryland.....	-	-	-	-	-	570	-	186	378
North Carolina.....	-	-	-	-	500	-	-	-	500
South Carolina.....	-	-	-	-	-	-	-	407	407
Virginia.....	-	300	-	850	-	-	115	-	345
South Atlantic States	-	300	-	850	282	570	133	213	294
UNITED STATES.....	663	386	393	378	309	286	278	297	347

Table 3. - Percentage of capacity rented on January 1, 1943, in plants reporting by State and year

STATE AND REGION	PERCENTAGE OF CAPACITY RENTED IN PLANTS OPENING IN								PER- CENTAGE OF CA- PACITY RENTED IN ALL PLANTS
	1935 AND PRIOR	1936	1937	1938	1939	1940	1941	1942	
Illinois.....	-	-	92	86	94	93	96	99	92
Indiana.....	-	-	-	94	100	93	100	98	96
Iowa.....	69	91	89	86	87	90	90	97	86
Kansas.....	88	83	88	84	87	98	86	91	89
Michigan.....	-	-	-	97	70	90	89	94	87
Minnesota.....	100	96	88	96	92	88	73	92	91
Missouri.....	86	100	100	84	98	96	93	90	92
Nebraska.....	88	84	95	84	84	93	94	86	88
North Dakota.....	88	78	97	93	94	92	93	91	92
Ohio.....	-	-	76	88	83	100	84	85	86
South Dakota.....	100	85	74	94	98	83	92	83	89
Wisconsin.....	94	98	90	90	90	88	82	63	88
North Central States.....	82	91	88	88	91	91	88	90	89
Arizona.....	-	-	-	-	-	-	100	-	100
California.....	80	-	90	96	69	95	97	92	88
Colorado.....	88	100	-	92	81	96	88	-	90
Idaho.....	65	95	90	91	96	86	89	75	80
Montana.....	75	-	-	91	91	94	95	90	91
New Mexico.....	-	-	-	-	-	-	100	-	100
Oregon.....	81	99	96	96	90	93	100	100	91
Utah.....	98	-	96	72	100	97	100	-	96
Washington.....	95	99	97	95	96	94	99	96	96
Wyoming.....	50	-	100	-	95	82	88	-	83
Western States.....	86	98	96	94	89	93	97	93	91
Alabama.....	-	-	-	-	95	90	72	-	84
Arkansas.....	-	-	-	-	87	76	100	100	88
Kentucky.....	-	-	-	-	-	100	100	100	100
Louisiana.....	-	-	-	-	-	-	100	-	100
Mississippi.....	-	-	-	-	88	-	86	-	86
Oklahoma.....	62	97	94	86	86	92	96	95	91
Tennessee.....	-	-	-	49	100	100	-	100	94
Texas.....	-	-	-	100	87	96	80	99	87
South Central States.....	62	97	94	86	88	88	87	99	89
New Jersey.....	-	-	-	100	100	100	100	-	100
New York.....	80	100	100	-	100	-	70	72	82
Pennsylvania.....	50	100	100	96	81	41	81	100	68
Vermont.....	-	-	-	-	76	-	-	71	74
North Atlantic States.....	52	100	100	97	86	53	79	74	74
Florida.....	-	-	-	-	85	-	-	-	85
Georgia.....	-	-	-	-	67	-	100	61	76
Maryland.....	-	-	-	-	-	100	-	100	100
North Carolina.....	-	-	-	-	47	-	-	-	47
South Carolina.....	-	-	-	-	-	-	-	100	100
Virginia.....	-	86	-	42	-	-	91	-	60
South Atlantic States.....	-	86	-	42	61	100	95	88	74
UNITED STATES.....	81	93	91	89	90	91	90	89	89



FIGURE 5  
AVERAGE LOCKER CAPACITY OF FROZEN-FOOD LOCKER PLANTS  
AND PERCENTAGE OF CAPACITY RENTED  
JANUARY 1, 1943



UNITED STATES DEPARTMENT OF AGRICULTURE  
FARM CREDIT ADMINISTRATION

COOPERATIVE RESEARCH AND SERVICE DIVISION 016100-5

The percentage of locker capacity rented increased from 64 percent on January 1, 1941, to 89 percent on January 1, 1943. To be able to serve patrons' needs, locker operators usually feel that at peak-load periods, 90 to 95 percent of lockers rented represents optimum use of total locker capacity.



plants are affiliated with ice and cold-storage plants, many of which had extra insulated space and refrigeration capacity which could be converted to locker rooms as needed. On the other hand, many of these earlier plants offer only storage facilities and the patron must prepare the product at home and bring it to the plant for storage. This type of operation is not nearly so popular as the modern locker plant with its numerous food processing services.

#### ANALYSIS OF LOCKER PLANT CAPACITY AND RENTALS BY AFFILIATION TYPE OF ENTERPRISE

In table 4, the plants reporting are shown by affiliation, region, and year of opening. Plants affiliated with meat markets and groceries continue to increase proportionally while plants affiliated with dairies and ice and cold-storage plants continue to decrease in number opened each year. Of particular interest is the steady increase in the percentage of plants opened that specialize in locker plant operation. Thus, 17 percent of the plants opened in 1936 were not affiliated with any other type of enterprise; during 1939, the percentage had increased to 19 percent of the plants opened while, during 1942, 24 percent or approximately one out of every four plants opened were not affiliated with any other business. This indicates a growing confidence in the stability of the locker plant industry.

The nonaffiliated types of plants normally offer more complete processing service than the affiliated types. Plants affiliated with other types of enterprises are often opened as a means of attracting business to the parent organization or as a protective measure against future competition. Lacking interest in the enterprise, or the necessary space, many owners do not provide the miscellaneous processing services now considered an essential part of modern rural locker plant service. It may be assumed, therefore, that the type of plant offering services such as slaughtering, curing, lard rendering, and smoking, in addition to chilling, aging, cutting, wrapping, and freezing, is increasing faster than the limited service type because the patrons are better satisfied with the more complete service. The decline in the number of plants opened in connection with dairies is largely because the recent development has been in areas where creameries are not so numerous as in the North Central States.

#### CAPACITY OF LOCKER PLANTS OPENED, BY TYPES OF ENTERPRISES

The average locker capacity of the plants reporting is shown in table 5 by affiliation, region, and year of opening. For the entire United States, locker plants opened by ice and cold storage plants lead, with an average capacity of 527 lockers per plant, followed by nonaffiliated plants with an average capacity of 428 lockers. The smallest plants (246 lockers) are operated by meat markets and grocery stores. This difference in capacity may be attributed largely to the availability of space and finances. In this connection it may be noted that there is no real difference in the capacity of plants opened by grocery and meat markets during earlier years and those opened during 1941 and 1942.

Table 4. - Analysis of 1,534 frozen-food locker plants by region, affiliation, and year of opening

REGION AND TYPE OF AFFILIATION	PLANTS OPENED IN								TOTAL PLANTS OPENED
	1935 AND PRIOR	1936	1937	1938	1939	1940	1941	1942	
North Central States:									
Meat market or grocery.....	4	8	22	62	80	126	85	33	420
Ice or cold storage.	16	12	14	30	15	10	8	4	109
Dairy plant.....	13	17	29	30	28	28	9	4	158
Other enterprise.....	-	7	6	11	29	21	18	6	98
Not affiliated.....	3	10	23	40	38	34	30	17	195
Total.....	36	54	94	173	190	219	150	64	980
Western States:									
Meat market or grocery.....	14	7	15	23	32	45	31	11	178
Ice or cold storage.	31	4	8	6	8	10	5	1	73
Dairy plant.....	18	4	7	9	7	5	6	-	56
Other enterprise.....	5	3	2	1	7	9	3	1	31
Not affiliated.....	7	4	3	7	9	10	7	4	51
Total.....	75	22	35	46	63	79	52	17	389
South Central States:									
Meat market or grocery.....	-	-	1	1	3	10	9	8	32
Ice or cold storage.	1	3	1	6	10	11	5	-	37
Dairy plant.....	-	-	1	-	-	-	2	-	3
Other enterprise.....	-	-	-	-	4	4	4	-	12
Not affiliated.....	-	-	-	1	3	11	9	1	25
Total.....	1	3	3	8	20	36	29	9	109
North Atlantic States:									
Meat market or grocery.....	-	-	1	1	-	-	4	3	9
Ice or cold storage.	5	3	2	2	5	1	-	-	18
Dairy plant.....	-	-	-	-	4	-	-	-	4
Other enterprise.....	-	-	-	-	-	1	1	2	4
Not affiliated.....	-	-	-	1	1	-	3	3	8
Total.....	5	3	3	4	10	2	8	8	43
South Atlantic States:									
Meat market or grocery.....	-	-	-	-	-	-	-	1	1
Ice or cold storage.	-	1	-	1	-	-	3	2	7
Dairy plant.....	-	-	-	-	-	-	-	-	-
Other enterprise.....	-	-	-	-	1	-	-	1	2
Not affiliated.....	-	-	-	-	2	1	-	-	3
Total.....	-	1	-	1	3	1	3	4	13
United States:									
Meat market or grocery.....	18	15	39	87	115	181	129	56	640
Ice or cold storage.	53	23	25	45	38	32	21	7	244
Dairy plant.....	31	21	37	39	39	33	17	4	221
Other enterprise.....	5	10	8	12	41	35	26	10	147
Not affiliated.....	10	14	26	49	53	56	49	25	282
Total.....	117	83	135	232	286	337	242	102	1,534



Table 5. - Average capacity of 1,534 frozen-food locker plants reporting January 1, 1943, by region, affiliation, and year of opening

REGION AND TYPE OF AFFILIATION	AVERAGE CAPACITY OF PLANTS OPENED IN								TOTAL NUMBER OPENED
	1935 AND PRIOR	1936	1937	1938	1939	1940	1941	1942	
Lockers									
North Central States:									
Meat market or grocery.....	266	285	290	258	226	219	201	245	230
Ice or cold storage.	756	408	416	601	323	435	362	306	497
Dairy plant.....	386	418	370	312	250	269	303	132	316
Other enterprise....	-	354	517	426	274	355	345	324	345
Not affiliated.....	180	427	440	431	443	416	328	317	402
Western States:									
Meat market or grocery.....	205	370	238	286	244	283	329	233	275
Ice or cold storage.	834	625	494	631	388	310	337	150	605
Dairy plant.....	706	276	313	319	243	175	222	-	407
Other enterprise....	364	526	434	100	326	372	223	76	346
Not affiliated.....	907	140	1,060	543	516	324	356	668	528
South Central States:									
Meat market or grocery.....	-	-	268	248	358	229	198	355	266
Ice or cold storage.	80	294	943	355	287	312	275	-	317
Dairy plant.....	-	-	220	-	-	-	416	-	350
Other enterprise....	-	-	-	-	360	267	290	-	306
Not affiliated.....	-	-	550	-	413	364	331	372	366
North Atlantic States:									
Meat market or grocery.....	-	-	390	475	-	-	332	233	333
Ice or cold storage.	1,836	507	495	335	785	125	-	-	912
Dairy plant.....	-	-	-	-	439	-	-	-	439
Other enterprise....	-	-	-	-	-	500	300	496	448
Not affiliated.....	-	-	-	440	900	-	610	647	639
South Atlantic States:									
Meat market or grocery.....	-	-	-	-	-	-	-	186	186
Ice or cold storage.	-	300	-	850	-	-	133	304	308
Dairy plant.....	-	-	-	-	-	-	-	-	-
Other enterprise....	-	-	-	-	300	-	-	58	179
Not affiliated.....	-	-	-	-	272	570	-	-	372
United States:									
Meat market or grocery.....	218	325	275	268	234	236	236	256	246
Ice or cold storage.	891	439	468	566	388	344	303	283	527
Dairy plant.....	572	391	355	314	268	255	288	132	342
Other enterprise....	364	406	496	399	292	353	321	307	343
Not affiliated.....	690	345	513	447	456	392	350	415	428
Average.....	663	386	393	378	309	286	278	297	347



This indicates either inability or unwillingness to expand or lack of sufficient demand to justify expansion.

The relatively few plants opened in connection with dairies during 1942 were the smallest of the plants opened during that year, while those not affiliated with any other type of enterprise were largest. The latter points again to the increasing confidence of new operators in the stability of the locker enterprise or its ability to stand on its own feet as well as the public acceptance of the type of service rendered by those plants specializing in lockers and related processing and frozen-food service.

#### COMPARISON OF CAPACITY AND PERCENTAGE RENTED BETWEEN THE PLANTS REPORTING IN EACH OF THE PAST THREE SURVEYS

Average capacity and percentage of capacity rented are shown by region and by affiliation in table 6 for plants reporting in the January 1, 1941, 1942, and 1943 surveys. The plants in the North Central, the Western, and the North Atlantic States show an average increase in capacity of 7, 55, and 112 lockers per plant, respectively, during this 3-year period. The South Atlantic States show a decided decrease in average capacity for this period. The wide variations in the average capacity of the plants in the South Atlantic States may be attributed to the small number of reports received from this area and, consequently, the influence of a few reports from very small plants.

The average capacity of plants affiliated with ice and cold storage plants, and dairies, as well as of the nonaffiliated units increased during 1940, 1941, and 1942, while the capacity of those connected with groceries, meat markets, and other enterprises showed little change during this period. (See figure 6.) This tends to substantiate the early statement that even with increased demand these latter groups cannot or will not expand.

The comparison of rentals reported on January 1, 1941, 1942, and 1943, as shown in table 6, points to a tremendous increase in the demand for lockers in all types of operating enterprises. The 89 percent of capacity rented on January 1, 1943, is virtually capacity usage if we recognize that all plants need a certain number of extra lockers to take care of the peak storage demands of their patrons. The relatively low percentage of locker capacity rented by the ice and cold storage plants is probably due, as mentioned earlier, to their ability to add locker capacity and, to a lesser extent, to the lack of supplementary processing services rendered in some of these plants.

The percentage of plant capacity utilized in the South Central States increased from 50 percent to 89 percent from 1940 through 1942; whereas, the percentage of increase in the North Atlantic States was only 10 percent of capacity. This difference would seem to indicate that demand in the North Atlantic States is not so great as in other areas. This, in turn, may be due to the lack of processing services rendered (see table 16) or to the rates charged for processing (see table 19) by plants in the North Atlantic States.

Table 6. - A comparison of reports on capacity and percentage of capacity rented by plants in the last three surveys on January 1, 1941, 1942, and 1943

Number of plants reporting

REGION	GROCERY OR MARKET			ICE OR STORAGE			DAIRY			OTHER			SEPARATE			TOTAL		
	1941	1942	1943	1941	1942	1943	1941	1942	1943	1941	1942	1943	1941	1942	1943	1941	1942	1943
North Central...	395	520	420	176	160	109	224	234	158	38	115	98	194	211	195	1,027	1,240	980
Western.....	192	208	178	95	90	73	73	68	56	17	37	31	27	44	51	404	447	389
South Central...	26	27	32	45	52	37	11	7	3	12	13	12	18	28	25	112	127	109
North Atlantic..	2	3	9	25	23	18	4	5	4	-	3	4	4	6	8	35	40	43
South Atlantic..	1	-	1	4	2	7	-	-	-	1	1	2	4	7	3	10	10	13
United States..	616	758	640	345	327	244	312	314	221	68	169	147	247	296	282	1,588	1,863	1,534

Average capacity in lockers

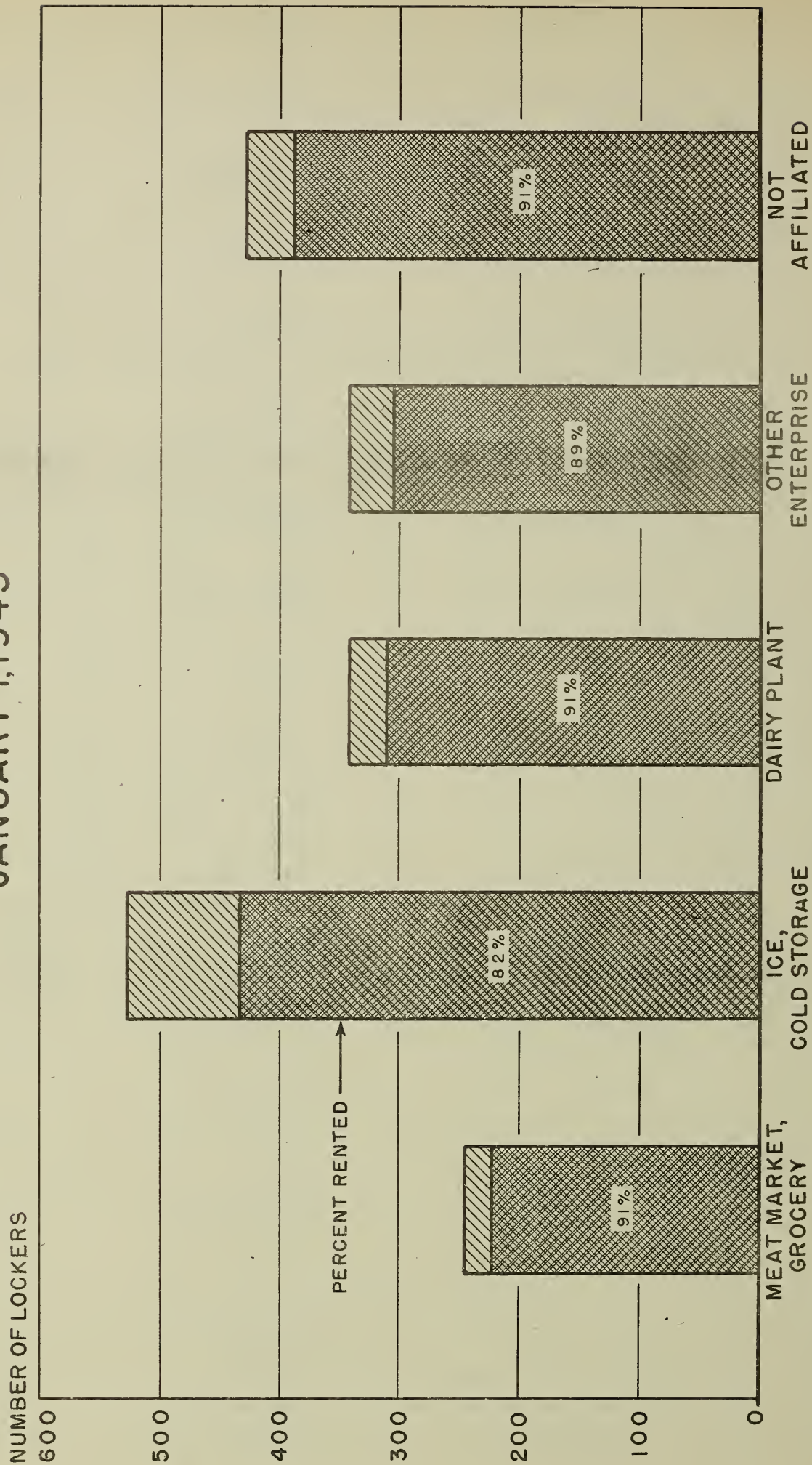
North Central...	242	228	230	400	443	497	298	309	316	324	320	345	391	400	402	312	309	319
Western.....	269	258	275	458	480	605	343	383	407	355	367	346	447	447	528	340	350	395
South Central...	336	304	266	285	335	317	328	263	350	457	325	306	499	416	366	356	342	313
North Atlantic..	445	342	333	569	629	912	588	500	439	-	475	448	364	628	639	541	580	653
South Atlantic..	495	-	186	360	150	308	-	-	-	300	300	179	522	486	372	432	400	294
United States..	255	240	246	413	447	527	313	327	342	355	333	343	406	415	428	328	327	347

Percentage of capacity rented

North Central...	63	77	90	62	68	85	72	78	91	59	78	88	67	77	90	65	76	89
Western.....	66	75	94	63	76	85	72	82	91	76	82	95	67	81	96	67	78	91
South Central...	50	68	92	49	57	83	44	56	100	53	55	89	52	71	93	50	63	89
North Atlantic..	39	79	98	70	75	68	35	70	97	-	50	77	54	42	76	63	68	74
South Atlantic..	50	-	100	40	90	70	-	-	-	22	28	87	43	68	75	41	67	74
United States..	63	76	91	62	70	82	70	78	91	61	76	89	65	76	91	64	75	89



FIGURE 6  
AVERAGE LOCKER CAPACITY OF PLANTS AND PERCENTAGE OF  
CAPACITY RENTED, BY AFFILIATIONS  
JANUARY 1, 1943



UNITED STATES DEPARTMENT OF AGRICULTURE  
FARM CREDIT ADMINISTRATION

COOPERATIVE RESEARCH AND SERVICE DIVISION

016100-6

Locker plants affiliated with ice or cold storage plants have by far the largest average capacity; those attached to meat markets, the smallest.



## ANALYSIS OF CAPACITY AND RENTALS BY OWNERSHIP

### NUMBER OF PLANTS OPENED

The data presented in table 7 and in figure 7 indicate that individual ownership and operation have increased steadily in relative importance, since 1935; whereas corporate ownership, which operated 52 percent of all plants opened during 1935 and earlier, has declined relatively to 11 percent of the plants opened during 1942. The plants opened by partnerships have increased steadily throughout the period; whereas, cooperatives increased relatively during the period ending 1937 and declined since that time. In general, the decreasing number of locker plants opened by corporations is due to the decline in the number of locker plants opened by the corporately owned ice and cold storage industry. (See table 4.)

### OWNERSHIP BY REGIONS

The analysis of ownership by regions in table 8 points to the fact that ownership by individuals is relatively high in the areas where the development is oldest; namely, the North Central and the Western States; and lowest in the two Atlantic coast regions. Corporate ownership, on the other hand, is most important in the new regions. This difference points to the fact that corporate ownership usually pioneers the development in new areas and individuals follow. The latter, in turn, may be due to the fact that many individually owned groceries and meat markets install lockers after other enterprises have opened plants in the area.

### CAPACITY OF PLANTS BY OWNERSHIP TYPE

The data on the relationship between plant ownership, year opened, and capacity in table 9 substantiates the earlier statement regarding the relationship between capital available and size. Corporately owned plants have an average capacity of 549 lockers while individually owned plants have average capacity of only 279. The corporately owned plants opened during 1935 and earlier have average capacity of 838 lockers; the individually owned plants, only 452. The average capacity of all cooperative plants is 358 lockers while those opened during 1935 or earlier average 569 lockers. These facts point to the possibility that in general, the industry may be underfinanced. This, in turn, reflects the conservative attitude of the banking groups toward this new enterprise.

### PERCENTAGE RENTED BY OWNERSHIP TYPES

The comparison of rentals by ownership types in table 10 and in figure 8 indicates that cooperatives lead all other ownership types, with 92 percent of their locker capacity rented. Partnerships, however, had practically the same percentage, 91.9. Cooperative plants operating in the South Atlantic States were not as successful as plants of other ownership in that region. In earlier surveys there was a much more

Table 7. - Ownership of 1,534 frozen-food locker plants reporting as of January 1, 1943, by year of opening

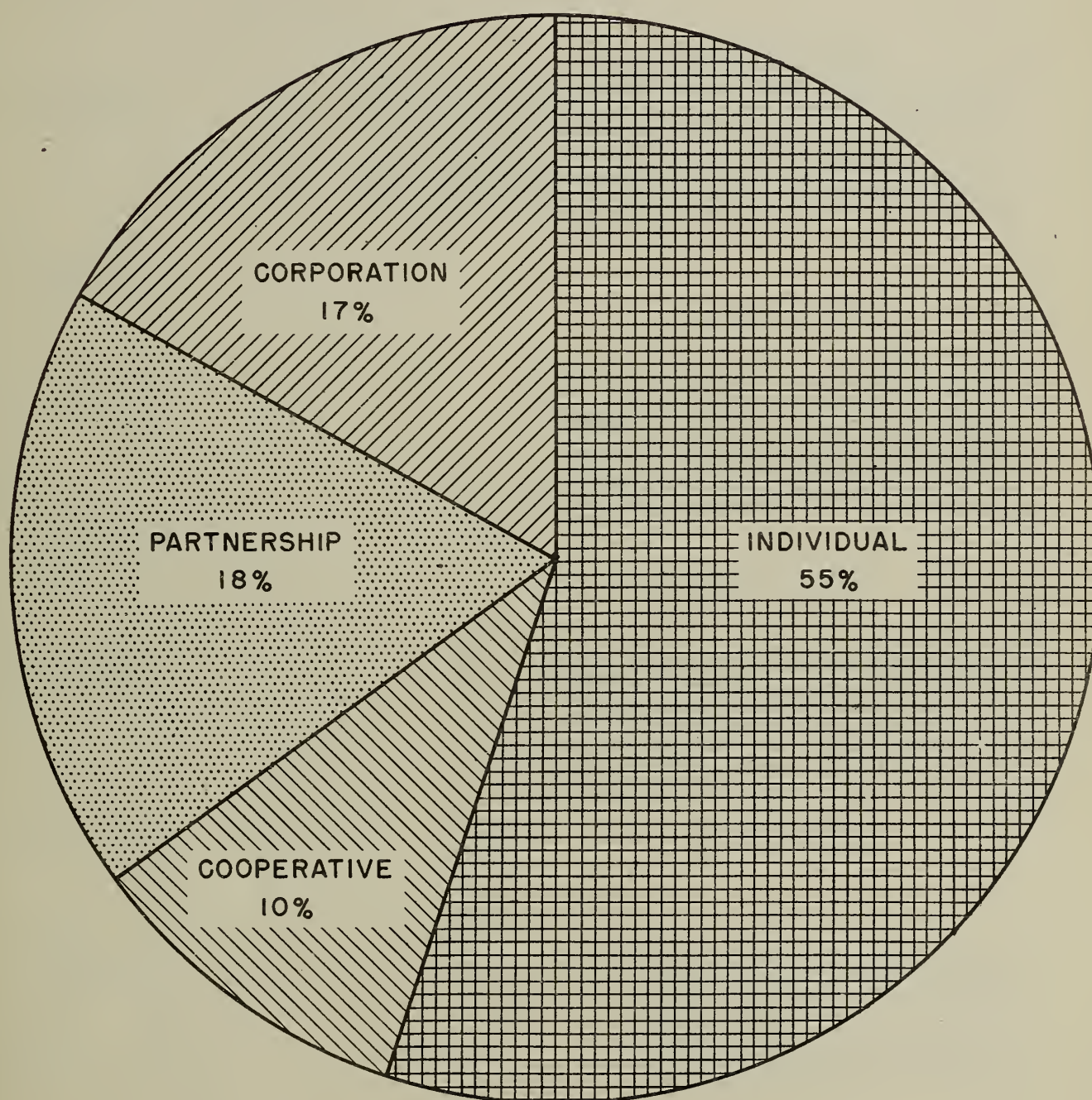
YEAR OF OPENING	PLANTS OPENED BY								ALL PLANTS	
	INDIVIDUAL		COOPERATIVE		PARTNERSHIP		CORPORATION		PLANTS REPORT- ING	PER- CENTAGE
	PLANTS REPORT- ING	PERCENT- AGE OF TOTAL FOR YEAR	PLANTS REPORT- ING	PERCENT- AGE OF TOTAL FOR YEAR	PLANTS REPORT- ING	PERCENT- AGE OF TOTAL FOR YEAR	PLANTS REPORT- ING	PERCENT- AGE OF TOTAL FOR YEAR		
1935 and prior....	35	30	9	8	12	10	61	52	117	100
1936.....	39	47	13	16	11	13	20	24	83	100
1937.....	64	47	23	17	22	16	27	20	136	100
1938.....	128	55	23	10	41	18	39	17	231	100
1939.....	159	56	34	12	49	17	44	15	286	100
1940.....	211	63	25	7	65	19	36	11	337	100
1941.....	153	63	12	5	49	20	28	12	242	100
1942.....	62	61	6	6	23	22	11	11	102	100
United States...	851	55	145	10	272	18	266	17	1,534	100

Table 8. - Ownership of 1,534 frozen-food locker plants reporting January 1, 1943, by regions

REGION	PLANTS OWNED BY								TOTAL PLANTS REPORTING
	INDIVIDUALS		COOPERATIVES		PARTNERSHIP		CORPORATION		
	PLANTS	PERCENTAGE OF TOTAL IN REGION	PLANTS	PERCENTAGE OF TOTAL IN REGION	PLANTS	PERCENTAGE OF TOTAL IN REGION	PLANTS	PERCENTAGE OF TOTAL IN REGION	
North Central.....	560	57	107	11	173	18	140	14	980
Western.....	221	57	25	6	72	18	71	18	389
South Central.....	52	48	9	8	22	20	26	24	109
North Atlantic.....	14	33	2	5	4	9	23	54	43
South Atlantic.....	4	31	2	15	1	8	6	46	13
United States.....	851	55	145	10	272	18	266	17	1,534



FIGURE 7  
TRENDS IN OWNERSHIP OF 1,534 FROZEN-FOOD  
LOCKER PLANTS REPORTING  
JANUARY 1, 1943



UNITED STATES DEPARTMENT OF AGRICULTURE  
FARM CREDIT ADMINISTRATION

COOPERATIVE RESEARCH AND SERVICE DIVISION

016100-7

More than half the frozen-food locker plants reporting January 1, 1943, were owned by individuals. Cooperatives owned about 10 percent.



Table 9. - Capacity and ownership of 1,534 frozen-food locker plants reporting January 1, 1943, by year of opening

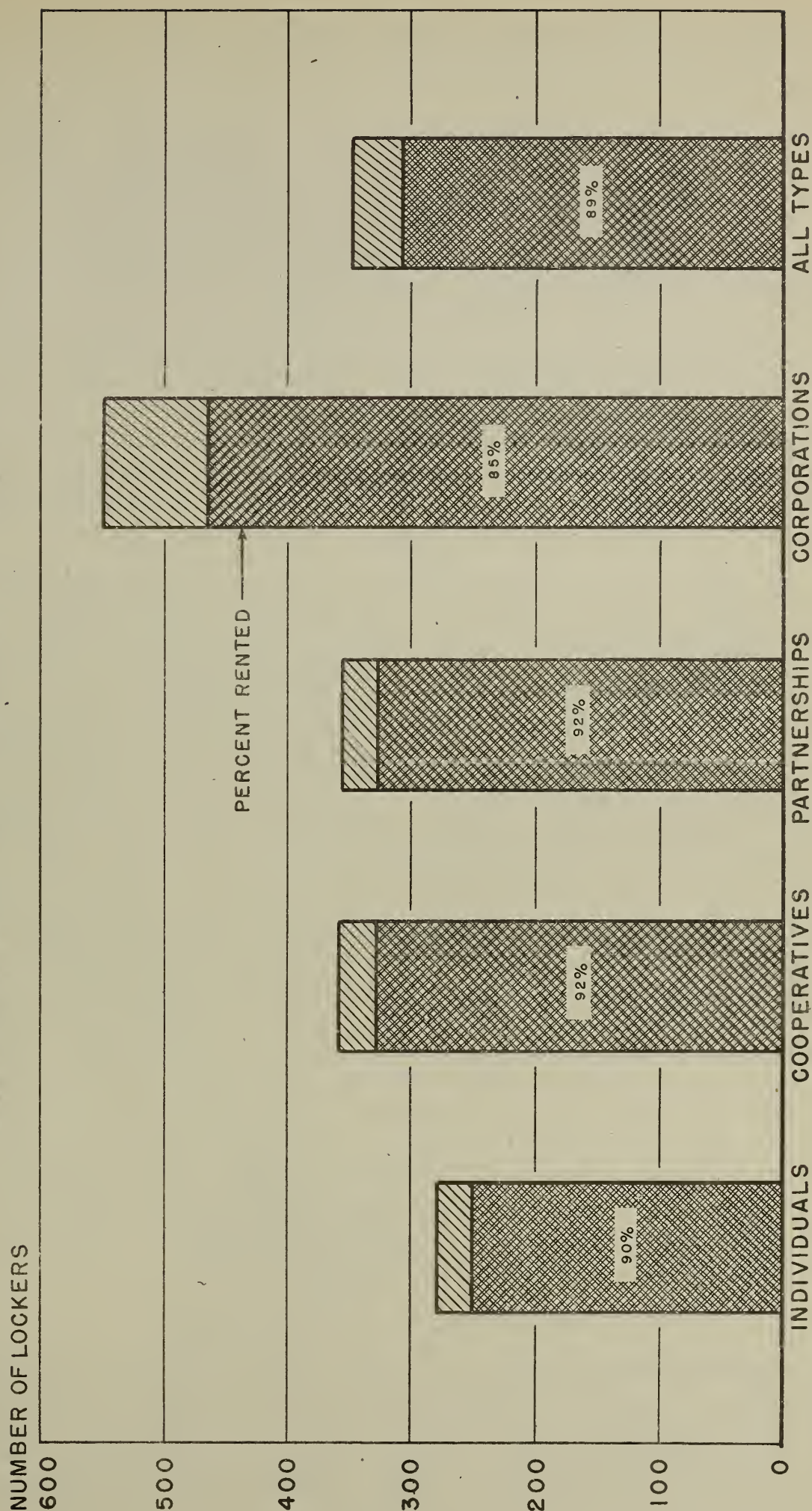
YEAR OF OPENING	AVERAGE CAPACITY OF PLANTS OWNED BY				ALL TYPES
	INDIVIDUALS	COOPERATIVES	PARTNERSHIP	CORPORATION	
Lockers					
1935 and prior.....	452	569	464	838	663
1936.....	332	409	399	471	386
1937.....	332	365	341	601	393
1938.....	318	356	484	477	378
1939.....	261	332	298	477	309
1940.....	241	343	336	422	286
1941.....	252	322	314	337	278
1942.....	261	204	337	468	297
All years.....	279	358	356	549	347

Table 10. - Ownership, average capacity, and percentage of capacity rented, for 1,534 frozen-food locker plants reporting January 1, 1943, by regions

REGION	PLANTS OWNED BY								ALL TYPES	
	INDIVIDUALS		COOPERATIVES		PARTNERSHIPS		CORPORATIONS		AVERAGE LOCKER CAPACITY	LOCKER CAPACITY RENTED
	AVERAGE LOCKER CAPACITY	LOCKER CAPACITY RENTED	AVERAGE LOCKER CAPACITY	LOCKER CAPACITY RENTED	AVERAGE LOCKER CAPACITY	LOCKER CAPACITY RENTED	AVERAGE LOCKER CAPACITY	LOCKER CAPACITY RENTED		
North Central..... Western..... South Central..... North Atlantic..... South Atlantic.....	<i>Lockers</i>	<i>Percent</i>	<i>Lockers</i>	<i>Percent</i>	<i>Lockers</i>	<i>Percent</i>	<i>Lockers</i>	<i>Percent</i>	<i>Lockers</i>	<i>Percent</i>
	260	89.6	355	92.4	327	90.5	522	84.7	319	89.3
	319	89.7	393	94.1	417	94.7	608	91.3	395	91.4
	287	88.5	304	94.7	345	94.2	341	83.6	313	89.1
	411	87.1	238	87.4	640	68.9	838	69.8	653	73.5
United States....	239	84.9	448	43.6	186	100.0	296	75.0	294	74.1
	279	89.6	358	92.0	356	91.9	549	84.7	347	88.8

FIGURE 8

OWNERSHIP OF 1,534 FROZEN-FOOD LOCKER PLANTS REPORTING  
JANUARY 1, 1943 SHOWING AVERAGE CAPACITY AND  
PERCENTAGE OF CAPACITY RENTED



UNITED STATES DEPARTMENT OF AGRICULTURE  
FARM CREDIT ADMINISTRATION

COOPERATIVE RESEARCH AND SERVICE DIVISION 016100-8

Plants owned by cooperatives and partnerships led all other types of ownership in percentage of capacity rented.



pronounced difference between plant ownership types. For example, the 1941 survey showed that cooperatives had 10 percent more of their lockers rented than the average for the three other ownership types.

## FARM AND NONFARM PATRONAGE OF LOCKER PLANTS

### FARM PATRONAGE BY REGIONS AND BY AFFILIATED ENTERPRISES

Three-fourths of all locker plant patrons are farmers. In table 11 the average number of patrons per locker plant and the percentage of patrons living on farms are shown by region and by affiliation. When compared with the earlier surveys, farm patronage increased during the 3 years 1940, 1941, and 1942. Thus, on January 1, 1941, locker plants reported 71.0 percent of the locker capacity rented to farm patrons and, on January 1, 1943, this farm patronage had increased to 74.4 percent. These data together with the data on the location of plants (see table 14) demonstrates that so far the locker plants are used largely by farmers and small town families. (See figure 9.)

Plants in the North Central States have the highest percentage of farmer patrons - 79.8 percent; those in the South Central States have the lowest - 60.9 percent. The latter percentage may be accounted for in part by the sizes of towns in which the plants are located and to some extent by the type of plant operating in this area. In the South Central States, 57 percent, or a relatively high percentage of all the plants, are located in towns with populations in excess of 5,000 (see table 14). A high percentage of the plants in this area are affiliated with ice and cold storage plants. Ice and cold storage plants have the lowest percentage of farm patronage among the groups. (See table 11.)

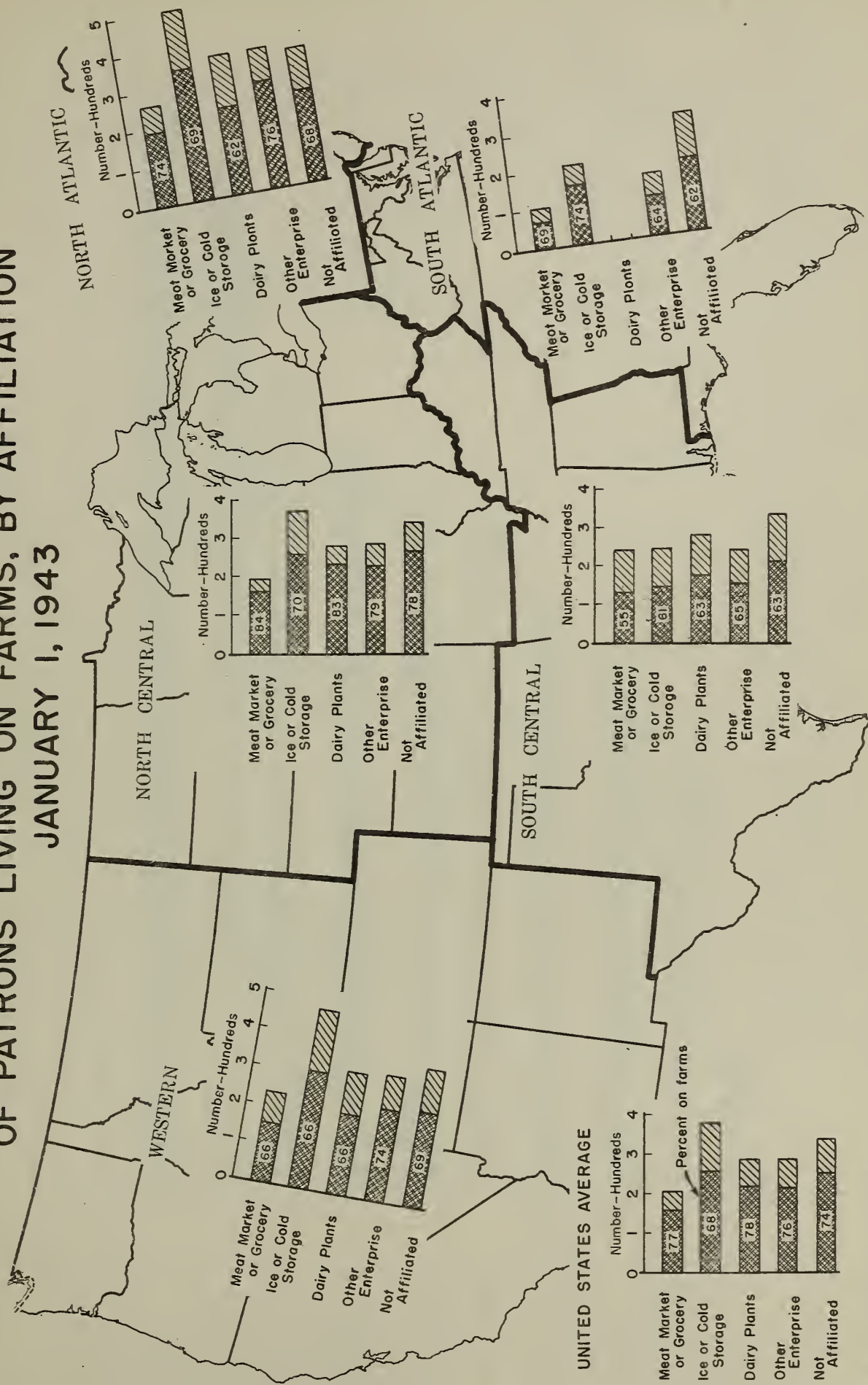
In general, it may be stated that farm families prefer to use the type of plant which can process the products of their farms in a rather complete and yet satisfactory and sanitary manner. The fact that many existing ice and cold storage plants are not equipped for processing local farm products may, therefore, be the factor accounting for the relatively small percentage of farm users in this group. On the other hand, these plants are larger and hence may be able to satisfy more town patrons. Also, there is a possibility that the town family in the relatively isolated country towns in the South Central region may not get the same commercial distribution of food that is provided in other regions. As might be expected, dairy plant lockers are used more by farmers than any other type. This is due largely to the fact that the creameries in this group serve only farmers.

### FARM PATRONAGE IN 12 SELECTED STATES

The extent to which farmers are using lockers in the 12 leading States is analyzed in table 12 which shows the present locker coverage in these States as a means of demonstrating what might be expected in the way of future development in other States. (See figure 10.) It must be recognized, of course, that many factors will determine the percentage of all farmers who will use lockers.



**FIGURE 9**  
**AVERAGE NUMBER OF PATRONS PER LOCKER PLANT AND PERCENTAGE**  
**OF PATRONS LIVING ON FARMS, BY AFFILIATION**  
**JANUARY 1, 1943**



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Three-fourths of all locker patrons in the United States are farmers.

Table 11. - Average number of patrons per locker plant and percentage of patrons living on farms, by affiliation and by region, January 1, 1943

AFFILIATED ENTERPRISE	NORTH CENTRAL STATES		WESTERN STATES		SOUTH CENTRAL STATES		NORTH ATLANTIC STATES		SOUTH ATLANTIC STATES		UNITED STATES	
	AVERAGE NUMBER OF PATRONS ON FARMS	% OF PATRONS LIVING ON FARMS	AVERAGE NUMBER OF PATRONS	% OF PATRONS LIVING ON FARMS	AVERAGE NUMBER OF PATRONS	% OF PATRONS LIVING ON FARMS	AVERAGE NUMBER OF PATRONS ON FARMS	% OF PATRONS LIVING ON FARMS	AVERAGE NUMBER OF PATRONS ON FARMS	% OF PATRONS LIVING ON FARMS	AVERAGE NUMBER OF PATRONS ON FARMS	% OF PATRONS LIVING ON FARMS
Meat market or grocery.....	194	84.0	239	66.1	244	55.3	263	73.8	102	68.6	209	77.0
Ice or cold storage.....	372	70.4	472	65.5	249	60.6	503	69.2	208	74.0	390	67.7
Dairy plants.....	281	82.9	322	66.1	282	63.1	369	62.1	-	-	293	77.5
Other enterprise.....	285	78.9	330	73.6	246	65.4	369	75.6	162	64.2	293	76.4
Not affiliated.....	341	77.7	368	69.3	338	62.7	352	68.2	311	61.7	346	74.3
Average.....	268	79.8	321	67.0	271	60.9	403	69.5	226	67.3	285	74.4

Table 12. - Extent of farmer participation in use of lockers in 12 leading States, January 1, 1943<sup>a</sup>

STATE	TOTAL <sup>b</sup> PATRONS <sup>c</sup>	PERCENTAGE OF PATRONS WHO WERE FARMERS <sup>c</sup>	TOTAL FARM PATRONS <sup>d</sup>	TOTAL <sup>e</sup> FARMERS	PERCENTAGE OF FARMERS USING LOCKERS <sup>f</sup>
Idaho.....	34,970	78	27,277	43,663	62
Iowa.....	150,969	83	125,304	213,318	59
Minnesota.....	107,500	85	91,375	197,351	46
Illinois.....	109,782	81	88,923	213,439	42
Nebraska.....	55,040	86	47,334	121,062	39
Wisconsin.....	90,860	81	73,597	186,735	39
South Dakota.....	28,675	84	24,087	72,454	33
Kansas.....	65,340	70	45,738	156,327	29
California.....	48,360	70	33,852	132,658	26
Texas.....	59,649	58	34,596	418,002	8
Washington.....	147,050	62	91,171	81,686	(g)
Oregon.....	85,935	68	58,436	61,829	(g)

<sup>a</sup>According to the records of plants received in the office of Cooperative Research and Service, Farm Credit Administration.

<sup>b</sup>Estimate based on the average number of patrons of plants reporting January 1, 1943, multiplied by the number of plants listed in Cooperative Research and Service Division.

<sup>c</sup>Based on reports of farm and nonfarm patronage, survey of January 1, 1943.

<sup>d</sup>Percent of patrons who were farmers multiplied by the estimated total patronage.

<sup>e</sup>Based on 1943 census - assuming that number of farms represents total number of farmers.

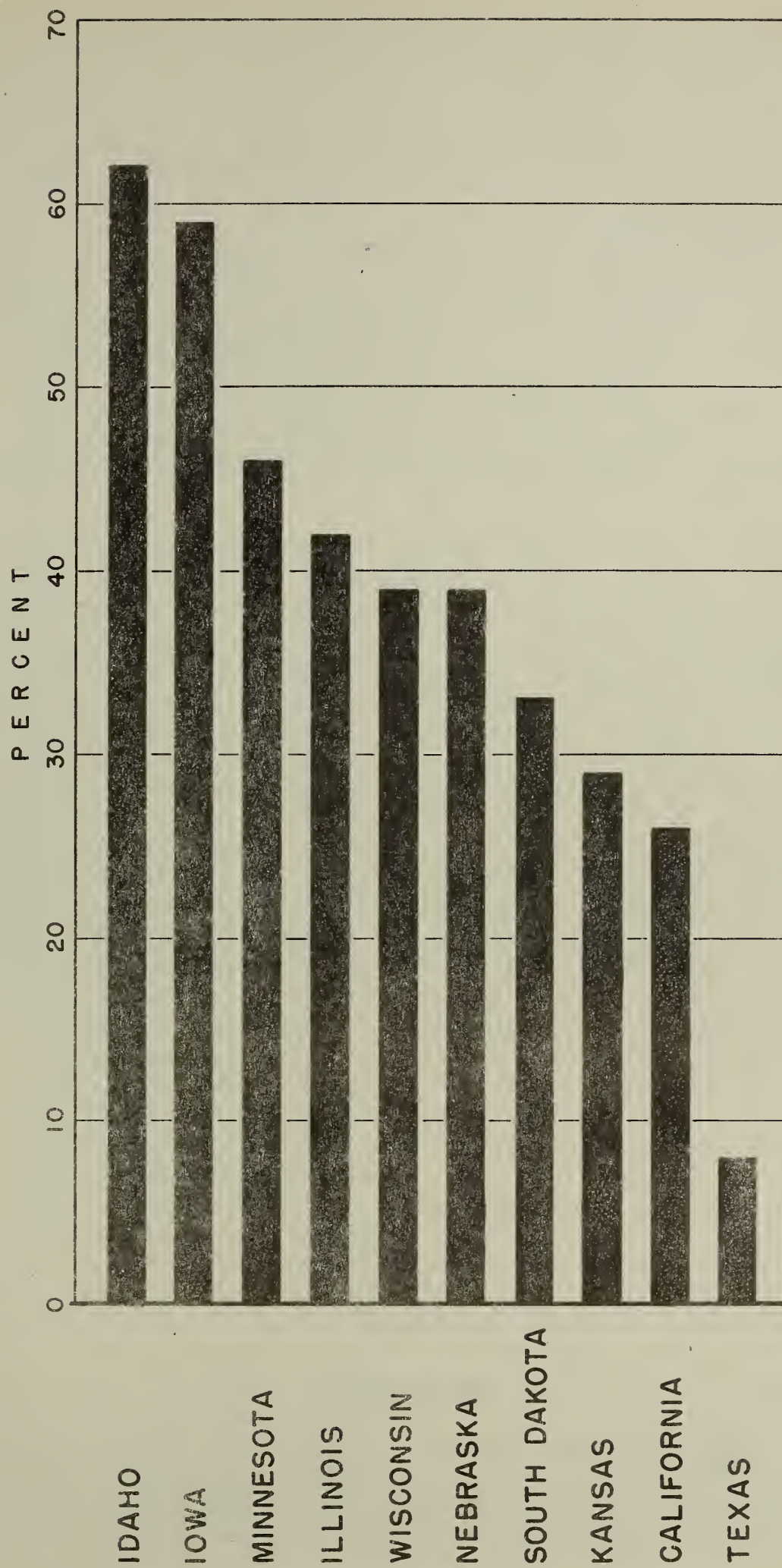
<sup>f</sup>Percentage that total number of farm patrons are of total number of farmers.

<sup>g</sup>The survey figures of total number of farm patrons evidently include operators on small acreages which the Census does not include in total of farms.



FIGURE 10

# PERCENTAGE OF FARMERS IN 10 LEADING STATES USING LOCKERS JANUARY 1, 1943



NOTE: OREGON AND WASHINGTON ARE OMITTED, SEE FOOTNOTE 7, TABLE 12.

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Even in the 10 leading States, the percentage of farmers using lockers varies from 8 in Texas to over 62 in Idaho.



In computing the percentage of all farmers using lockers, the average farm patronage per plant reporting was multiplied by the number of plants operating in the State. It is believed that the Washington and Oregon locker plant operators included in their estimate of farm patronage the many persons living on small tracts of land in these States who are not classed as farmers by the Bureau of the Census. For this reason, the very high percentage of farm patrons in these States may very well be questioned.

These data indicate that approximately 126,000, or 59 percent, of all the farmers in Iowa were using the facilities of the estimated 550 locker plants in the State. This represents an increase in farm patronage in Iowa of approximately 16 percent since 1941 and of 12 percent since 1942. The fact that the development in Iowa is 10 years old would seem to indicate that the rural population continues to find the locker a practical means of lowering the cost of food and adding variety to the diet.

These data also indicate the tremendous potential market for locker service among the millions of farmers in other States. Whether the development in other States expands as rapidly as it has in these 12, will depend on the plants built, the service rendered, the type of foods produced, and the cost of such service. The fact that farm usage is extensive in both the fruit and the vegetable areas of the Pacific Northwest and in the livestock producing sections of the North Central States points to the versatility of this industry. There is, however, a distinct difference between the development in these two areas.

The annual rental rate charged for lockers (see table 18) in Washington and Oregon was between \$7 and \$8. Whereas, in the North Central States the average was \$10.41. To accentuate the difference in rental rates the wooden lockers, used extensively in the Pacific Northwest, are 2 cubic feet larger than the 6 cubic foot steel ones. Fruits or vegetables can be placed in the locker during only one season of the year. To the locker patrons this means that the unit cost of storage for them is higher than for meat, which can be replaced frequently. Thus, the relatively low rentals in the North Pacific area encourage fruit and vegetable storage; whereas, in the areas where rentals are higher, fruit and vegetable storage by patrons may not be so economic and hence so popular. In forecasting locker use by farmers in those areas where meat animals are not produced extensively, the above analysis must be kept in mind. In any case, the 5 million farm families not now served by locker plants constitute a sizable potential demand. The problem facing the industry will be one of adapting locker plant services and rates to the needs of these families.

#### TOWN PATRONAGE

The average number of town patrons and the average percentage of lockers rented to town patrons appear in table 13, by region and by size of town. As indicated in the 1941 survey, the plants in the Western States reported a larger average number of town patrons per plant in all sizes





of towns than the plants reporting from the North Central States. For the United States, there were 55 town patrons per locker plant in 1940, while in 1942 there were 73 town patrons per plant. This represents an increase in town patronage of 33 percent over a 2-year period.

## LOCATIONS OF LOCKER PLANTS REPORTING

### PERCENTAGE OF PLANTS IN TOWNS OF SPECIFIED POPULATION

The greatest development in the use of locker plants has been in small rural towns. As indicated in table 14, 34 percent of the locker plants are located in towns with a population of less than 1,000. Furthermore, 71 percent of the locker plants are located in towns with populations of less than 5,000; while only 9 percent are in towns of more than 25,000. (See figure 11.)

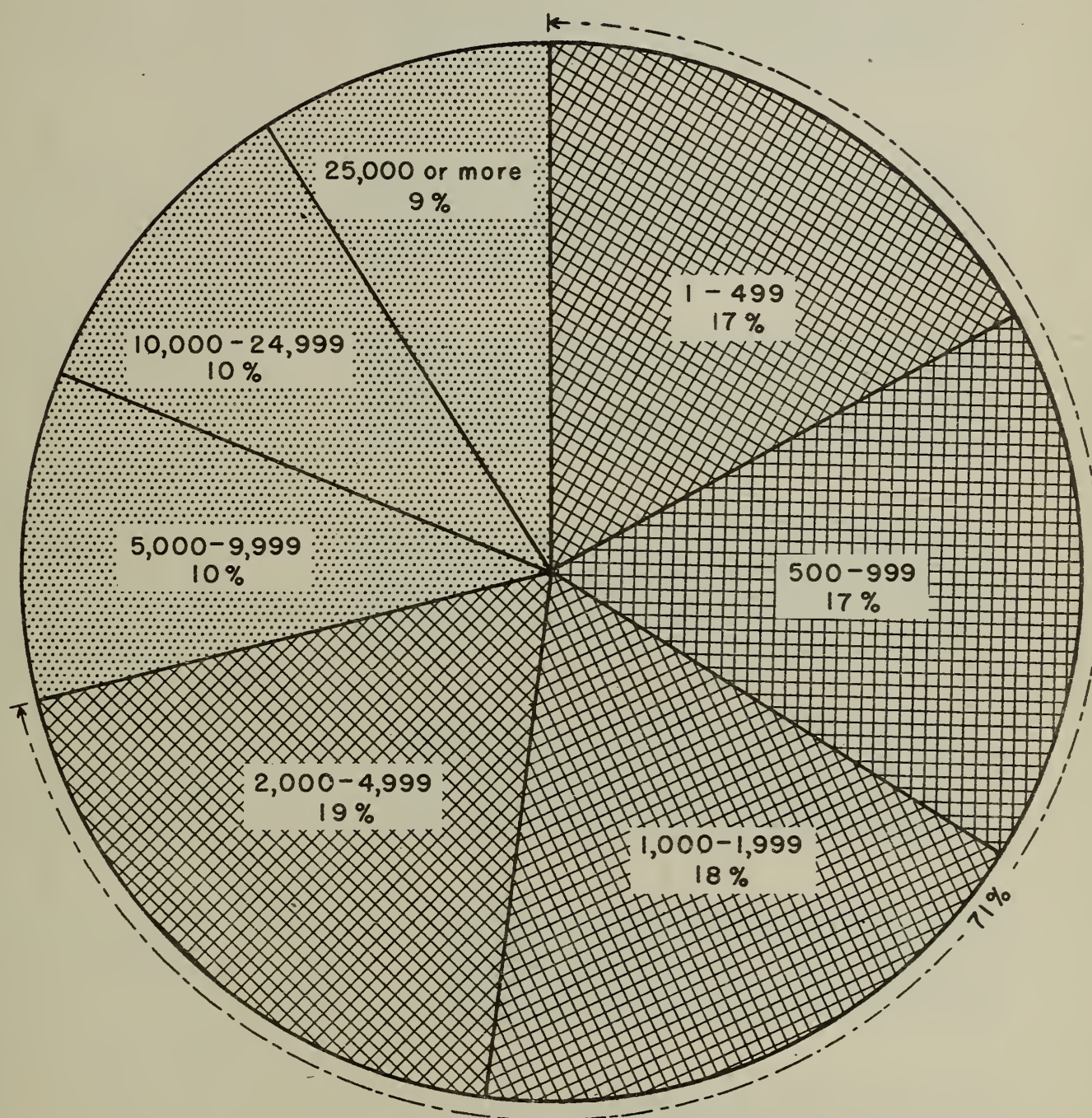
When analyzed by regions, there is considerable difference in the sizes of towns where most of the plants are installed. In the North Central States, 78 percent and in the Western States, 66 percent of the plants are in towns with populations of less than 5,000. In the South Central, North Atlantic, and South Atlantic States, only 43, 45, and 36 percent, respectively, of the plants are in towns of less than 5,000 population. In the North Central and the Western States, where the development is oldest, the majority of the plants are to be found in small rural towns while in those areas of recent locker plant development, the plants are located in the larger towns. In the North Central States only 13 percent of the plants reporting are in towns of over 10,000 population, while in the South Atlantic States 47 percent of the plants are so located.

### TRENDS IN THE LOCATION OF LOCKER PLANTS

In table 15 the number and the percentage of plants reporting are analyzed by year of opening and by population of town. Of these plants, 49 percent opened in 1935 and prior were in towns of less than 5,000 population; while in 1940, 76 percent of the plants opened were in towns of less than 5,000 population. (See figure 12.) In 1942, the percentage of plants opened in the small towns dropped to 65 percent. It would appear that from 1935 through 1940 the percentage of plants opened in towns with a population of less than 5,000 increased as a percentage of all plants opened; while, during 1941 and 1942, this percentage decreased.

This increase may have been due in part to the war and its effect on the food supply and to the influence of scarcity on the demands of patrons around the larger cities. However, it should be pointed out that rationing, as such, was not started until the spring of 1943; hence, it was not a factor in the changed demand. This trend toward larger cities during 1941 and 1942 may indicate that with some modifications the locker system can be used to advantage by large city patrons. The most important difference will be the source of food supplies.

FIGURE II  
 PERCENTAGE OF 1,875 LOCKER PLANTS  
 OPERATING IN TOWNS OF SPECIFIED SIZES  
 JANUARY 1, 1943



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Seventy-one percent of the locker plants reported were in towns of less than 5,000 population.



Table 15. - Number and percentage of frozen-food locker plants opened during each of the past 7 years and all prior years in towns of specified population

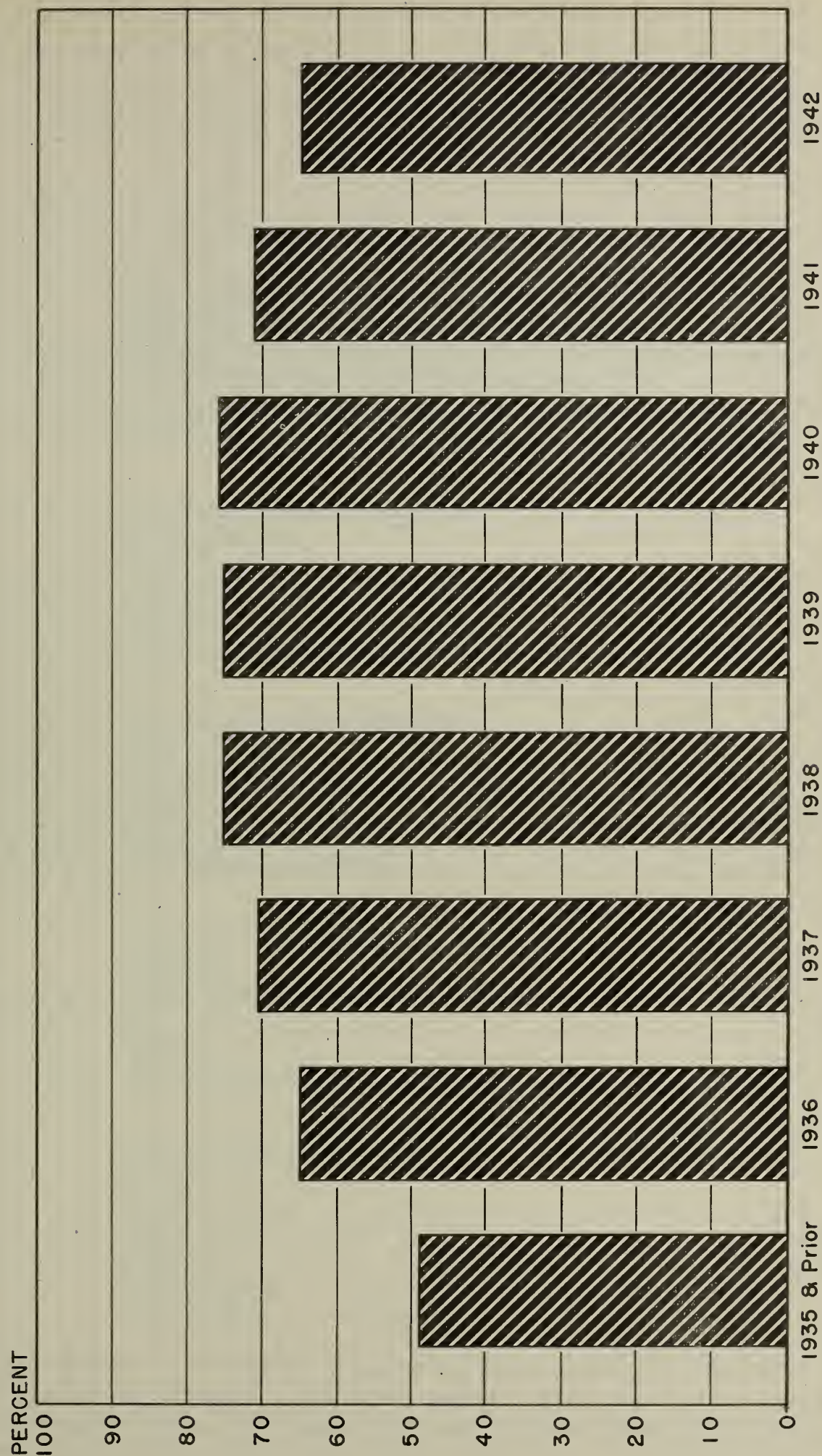
POPULATION OF TOWN	1935 AND PRIOR		1936		1937		1938		1939		1940		1941		1942		ALL YEARS	
	Per- cent		Per- cent		Per- cent		Per- cent		Per- cent		Per- cent		Per- cent		Per- cent		Per- cent	
	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent
1 - 499.....	17	11	14	13	19	11	41	15	71	21	87	22	52	17	17	14	318	17
500 - 999.....	14	10	11	10	31	18	42	15	69	21	86	21	55	19	17	14	325	17
1,000 - 1,999.....	21	13	18	17	32	19	76	28	50	15	65	16	55	18	19	15	336	18
2,000 - 4,999.....	24	15	27	25	40	23	47	17	61	18	68	17	54	18	27	22	348	19
5,000 - 9,999.....	24	15	14	13	22	13	31	11	28	8	41	10	25	8	8	6	193	10
10,000 - 24,999.....	31	19	14	13	14	8	18	7	38	11	27	7	30	10	13	11	185	10
25,000 and over.....	27	17	10	9	14	8	19	7	19	6	29	7	30	10	22	18	170	9
Total.....	158	100	108	100	172	100	274	100	336	100	403	100	301	100	123	100	1,875	100
Average population of town.....	5,625		3,222		2,300		1,710		1,560		1,438		1,791		2,944		1,903	

Table 16. - Number and percentage of locker plants that provide major processing services, by regions, 1942

REGION	TOTAL PLANTS REPORT- ING <sup>a</sup>	MAJOR PROCESSING SERVICES							
		CHILL, CUT, WRAP, FREEZE, AND GRIND		CURE		SMOKE		RENDER LARD	
		PERCENTAGE OF PLANTS IN AREA		PERCENTAGE OF PLANTS IN AREA		PERCENTAGE OF PLANTS IN AREA		PERCENTAGE OF PLANTS IN AREA	
		PLANTS	PERCENTAGE OF PLANTS IN AREA	PLANTS	PERCENTAGE OF PLANTS IN AREA	PLANTS	PERCENTAGE OF PLANTS IN AREA	PLANTS	PERCENTAGE OF PLANTS IN AREA
North Central.....	1,215	1,026	84	547	45	508	42	407	34
Western.....	521	355	68	116	22	100	19	64	12
South Central.....	140	126	90	77	55	50	36	45	32
North Atlantic.....	59	39	66	8	14	6	10	2	3
South Atlantic.....	18	17	94	8	44	3	17	2	11
United States.....	1,953	1,563	80	756	39	667	34	520	27

<sup>a</sup> Includes all plants reporting in the 1942 survey.

FIGURE 12  
 PERCENTAGE OF FROZEN-FOOD LOCKER PLANTS OPENED  
 IN TOWNS OF LESS THAN 5,000 POPULATION



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From 1935 through 1940 the percentage of frozen-food locker plants opened in towns of less than 5,000 population increased, but during 1941 and 1942 this percentage declined.



Thus, locker plants must purchase meats from packers and replace the retailers as a source of foods. To do this they must show savings or greater convenience in shopping. (See also table 22.)

### MEAT PROCESSING AND SLAUGHTERING SERVICES PROVIDED

The basis or distinguishing service rendered by all locker plants is rental of the 5- to 12-cubic-foot steel or wood compartments in a room held at 0° to 10° F. Most of the plants opened prior to 1935 furnished only this storage service. Most of those opened since that time have included facilities for related processing services. In fact, many of the older plants have added facilities for processing. Normally the first services added are chilling, aging, cutting, grinding, and wrapping meat. The larger and more modern plants in rural areas offer one or more of the supplementary processing services such as pork curing and smoking, lard rendering, slaughtering, poultry picking, vegetable blanching, and fruit and vegetable packaging.

#### MEAT CHILLING, CUTTING, WRAPPING, FREEZING, AND GRINDING

Eighty percent of the 1,953 plants reporting offered chilling, cutting, wrapping, freezing, and grinding services. (See table 16 and figure 13.) Of all the plants in the North Central States, 84 percent rendered these services. In the Western States only 68 percent of the plants furnished these services; and, among the plants reporting from the North Atlantic States, only 66 percent. In the North Atlantic States many plants operated in connection with commercial cold storages do no processing. In the Western States the low percentage of plants which do processing is due largely to the number of older plants in the group and to some extent to the fact that where fruits and vegetables are stored extensively there is less incentive to provide meat processing facilities and service.

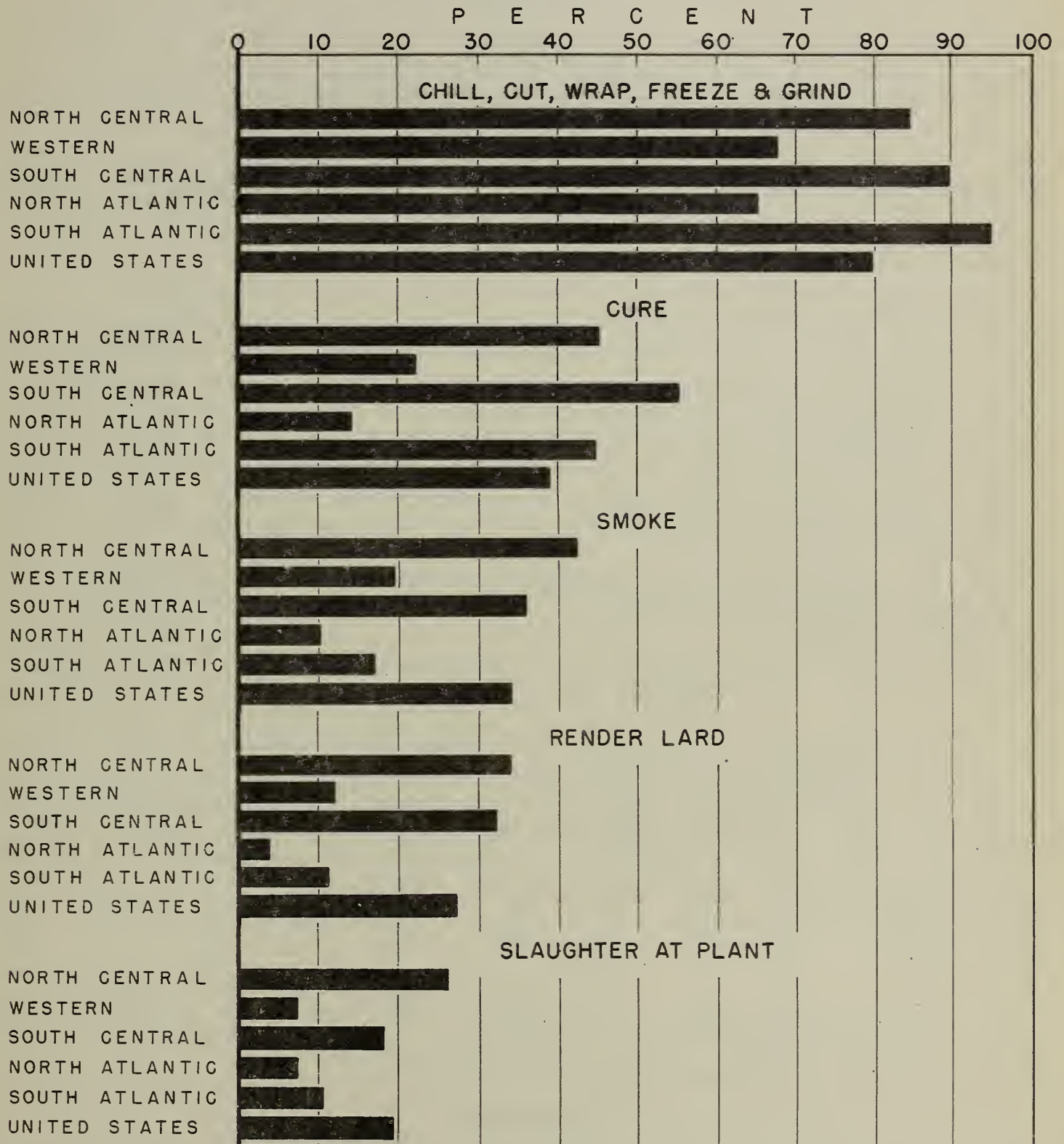
#### CURING

The percentage of plants that furnished pork curing services was, as might be expected, highest in the South Central States. No doubt, the need for curing facilities in connection with locker plants is greater in this region than in any other region except the South Atlantic States. The relatively high natural temperatures in these States make farm curing very hazardous. The low percentage of plants that provide curing service in the Western States is due largely to the limited hog production in this area. In general, it seems likely that an increasing proportion of the plants will furnish curing service as a means of providing variety in the meat menus of farm families using lockers.

#### SMOKING

The percentage of plants that provide pork smoking service is highest, 42 percent, in the North Central States. Though the South Central region had 55 percent of the plants curing pork, only 36 percent of the plants smoked meats. This indicates the traditional difference in the

**FIGURE 13**  
**PERCENTAGE OF LOCKER PLANTS REPORTING THAT**  
**PROVIDE MAJOR PROCESSING SERVICES**  
**BY REGIONS - 1942**



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Of the 1,953 plants reporting, 80 percent provided chilling, cutting, wrapping, freezing, and grinding services, with some variations between regions. Only 19 percent provided slaughtering service at the plant.



pork demands of the South and the North. Smoking is likely to increase in popularity. This service requires only a small investment in equipment and is a relatively simple process. As with curing, farmer demand is likely to force many plants to add this service for variety in their meat menus.

LARD RENDERING

Lard rendering is apparently most popular in the North and South Central regions, where 34 and 32 percent, respectively, of all plants reporting offered this service. Patron surveys indicate that farm housewives appreciate having this job done at the plant. Hence, though the investment in a lard kettle, a press, and the other equipment necessary for lard rendering is greater than that in smoking equipment, it seems likely that this service will occupy an increasingly important place in those plants that operate in pork producing areas.

The storage of rendered lard is much simpler than the storage of fresh fats which many farm families ask the plant to freeze and store for them. Too, lard rendering facilities may encourage meat cutters to trim lean cuts more carefully than where such service is not available. Thus, instead of wasting excessive amounts of the fats which are fried out in cooking and in many cases thrown in the garbage, housewives will have the lard for baking. Though lockers and retailers sell fat at pork chop prices, this is not a factor in locker plant cutting. Locker plant meat cutters should be encouraged to trim fat from all lean cuts.

Table 17. - Number and percentage of frozen food locker plants that provide slaughtering and poultry dressing services, by regions, January 1, 1943

REGION	TOTAL PLANTS REPORT- ING	SLAUGHTER ON FARM		SLAUGHTER AT PLANT		SLAUGHTER ELSEWHERE		DRESS POULTRY	
		PLANTS PROVID- ING SERVICE	PERCENT- AGE OF PLANTS IN AREA PRO- VIDING SERVICE	PLANTS PROVID- ING SERVICE	PERCENT- AGE OF PLANTS IN AREA PRO- VIDING SERVICE	PLANTS PROVID- ING SERVICE	PERCENT- AGE OF PLANTS IN AREA PRO- VIDING SERVICE	PLANTS PROVID- ING SERVICE	PERCENT- AGE OF PLANTS IN AREA PRO- VIDING SERVICE
North Central..	1,215	324	27	310	26	228	19	316	26
Western.....	521	41	8	35	7	62	12	52	10
South Central..	140	23	16	25	18	33	24	70	50
North Atlantic.	59	2	3	4	7	7	12	10	17
South Atlantic.	18	4	22	2	11	7	39	3	17
United States	1,953	<sup>a</sup> 394	20	<sup>a</sup> 376	19	337	17	451	23

<sup>a</sup>79 plants included slaughtered both on farm and at plant.

SLAUGHTERING

Custom slaughtering by locker plants is increasing in popularity; 56 percent of the plants reporting did some at the plant, on the farm, or elsewhere. In the first survey conducted as of January 1, 1940, only 5 percent of the plants reporting did slaughtering at the plant; while the data in table 17 of the current survey show that 19 percent of the

plants reporting did slaughtering at the plant. This points to an increased demand on the part of farmers for this service. Plant operators also find that slaughtering at the plant makes possible better use of personnel than slaughtering on the farm. It also eliminates the delay in getting pork carcasses chilled, which is a major factor in preventing spoilage at the bone in the curing process as well as the development of fat rancidity in frozen storage. The faster pork is chilled, the longer it can be stored.

## LOCKER RENTAL AND PROCESSING RATES

### RENTAL RATES

Frozen food locker plant operations revolve around the storage of products for the family in rooms held at from 0° to 10° F. The individual compartments in which the families' foods are stored are built of wood or steel. In the Pacific Northwest, wooden lockers averaging about 8 cubic feet in capacity are used extensively while in all other areas the steel locker with an average capacity of 6.4 cubic feet is used. The plants that installed steel lockers during the middle 1930's used one drawer 20 x 20 x 30 and four or five door-type lockers above this with outside dimensions of 17 x 20 x 30 inches. During the last 5 years there has been a trend toward the use of more draw-type lockers and many plants are now using 3 drawers and 3 or 4 doors. These more modern lockers are 24 inches wide, 15 to 18 inches high, and 30 inches deep. It seems likely that an even greater proportion of draw-type lockers may be used because the wide and relatively shallow draw permits the patrons to see a greater proportion of the packages than does the door-type locker. Though there is a demand from some patrons for a larger locker, the industry generally feels that the rental of additional or extra lockers is a more economical approach to the space problem.

Rental rates in those plants using steel lockers vary according to location and type of locker. The draw-type lockers in the bottom row, for example, as well as those in the second and sometimes the third rows, are both more accessible from the floor and more convenient than a door-type locker in the same location. Thus, if the third row is of draw-type lockers, one may rent for \$2 to \$3 more per year than a door-type locker in the same location. It is also true that the rental rates may vary somewhat for lockers within a given row as a result of a slight variation in size.

In the analysis of locker rental rates by States, the average rate for the lockers in the entire plant was used without regard to size, location, or type; therefore, it should be kept in mind that, though there is no significant difference in average size or capacity of steel lockers used in the various States, the data on rental rates in Washington, Oregon, and the Rocky Mountain States where the larger wooden lockers are used extensively is not a true picture.

The data in table 18 indicates that the average annual locker rental rates vary considerably between States. The highest average rates are



in West Virginia, New Mexico, Arizona, New Hampshire, Louisiana, Maryland, Georgia, and Florida. The average rates in this group exceed \$12 while the rates in Washington and Oregon are less than \$8. This difference is accentuated by the fact that the wooden lockers in Washington and Oregon are 30 percent larger than the steel lockers used in the higher rental rate group. Thus, where renters in the Pacific Northwest pay approximately \$1 per cubic foot per year for lockers, those in the higher rental areas pay \$2. Part of this wide difference is due to the types of equipment and service rendered. The steel draw locker is much more convenient than a wooden door type in the same location. Too, the more modern plants in the newer areas of development furnish more processing and handling services, part of the cost of which is paid for in higher locker rentals.

### PROCESSING RATES

Chilling, cutting, wrapping, and freezing meat is the most universal of all processing services furnished by locker plants today. As stated already the earlier plants providing locker storage did no meat processing. It was found, however, that patrons were careless in wrapping meat, that they did not have facilities for chilling or aging, and oftentimes delayed processing of pork for too long. Even when the plant furnished chilling and cutting facilities for use by patrons, the results were not satisfactory. The patrons were prone to criticize the locker system of preservation rather than to recognize the errors in handling their own product. This led to the modern processing room with competent personnel; special packaging materials; the power meat saw and the power grinder; the special aging room for beef and lamb; the sharp-freezing room, cabinet, or tunnel with the resulting improvement in the product. It was found that patrons were willing to pay a reasonable rate for these services in order to insure the higher quality.

As shown in table 18, the average rates for chilling, cutting, wrapping, and freezing meats by States vary considerably. The plants in South Dakota charged only \$1.31 per 100 pounds of carcass handled, while the plants in Georgia charged \$2.58. It seems unlikely that the actual cost of rendering this service varies as much as the rates. Though detailed studies reveal that the cost of this service varies considerably between plants, particularly as a result of differing labor costs, there is little evidence to support the contention that operating costs in Georgia are \$1.27 per 100 pounds higher than those in South Dakota. The few studies which have been conducted indicate that the cost of rendering this service will range upwards from \$1.35 per 100 pounds of carcass. Labor costs probably make up 50 to 70 percent of the total. Hence, variations in wage rates and efficiency in the use of labor will have marked effects on processing rates.

Many plants have included the charge for grinding with that made for chilling, cutting, wrapping, and freezing. This system eliminates the labor involved in weighing ground meats or fats and the cost of keeping

records on these small items. It also permits billing the producer at the time the carcass is delivered for chilling and/or aging. Though there is some variation in the percentage of carcass ground, this variation does not seem to be enough to justify the added cost of separate grinding records and charges. Therefore, it seems likely that this system of charges will become more general in the locker industry.

A comparison of the rates charged (see table 18) indicates that operators get 22 cents more per 100 pounds of carcass weight when grinding is included with the chilling, cutting, wrapping, and freezing. Processing records indicate that the plants in the North Central States grind from 15 to 20 pounds out of each 100 pounds of carcass handled. The average rate for grinding when a special grinding charge is made is \$1.27 per 100 pounds ground; therefore, the net charge to patrons is about the same. Thus, if a patron were to pay \$1.50 to have 100 pounds of carcass chilled, cut, wrapped, and frozen, plus \$1.25 per 100 pounds for grinding, the cost would be about the same if the patron paid \$1.75 per 100 pounds of carcass for both operations. In making the shift to the combined rate, the operator gains the saving in labor of weighing ground products and of making the bookkeeping entries.

As indicated in table 18, curing rates do not vary greatly from one State to another. With the exception of the two plants reporting from Arizona and from West Virginia, which charged \$5 per 100 pounds, the State averages ranged from a low of \$2.45 in Georgia to a high of \$3.86 in Oregon. On the other hand, the data in table 19 indicate that 40 percent of all the plants reporting curing rates charged 3 cents per pound, 20 percent charged 4 cents, and 16 percent charged 2 cents. Thus, though there is little variation in the average rates between States, there appears to be a marked variation within States.

It should be pointed out that there is considerable difference in curing methods and in the cost of each. Some plants "artery pump" hams and cure them in one-third the time it takes to cure them by the dry-salt method. Some plants use a brine vat cure which occupies more refrigerated space than the dry-salt or bin-type cure. These factors must be given consideration in any comparison of curing rates.

Further, curing in many communities has been a highly seasonal operation with most of the volume coming in during 4 or 5 months in the winter. This situation leads to inefficiency in the use of curing capacity. To utilize meat storage capacity efficiently, farmers must spread their slaughtering throughout the year. Where slaughtering is thus spread, refrigerated curing rooms can be used throughout the year and the cost of curing can be reduced accordingly. This spacing of slaughtering time can be encouraged by operators through educational campaigns pointed toward the economies in rental of storage space, by providing slaughtering facilities at or near the plant where hog carcasses can be chilled promptly after slaughter, and by a pick-up service for livestock which will eliminate the problem of deliveries by farmers during the planting and harvesting seasons on the farm.



Table 18. - Average locker rented and processing rates, by States and regions, January 1, 1943

STATE AND REGION	AVER- AGE LOCKER RENTAL RATE	CHARGES FOR PROCESSING SERVICE							
		CUT, WRAP, AND FREEZE	CUT, WRAP, GRIND, AND FREEZE	GRIND	CURE	SMOKE	RENDER LARD	FREEZE FRUITS AND VEGE- TABLES	PROC- ESS- ING, PACK- AGING, AND FREEZ- ING VEGE- TABLES
	<i>Per year</i>	<i>per hundredweight</i>							
Illinois.....	\$11.82	\$1.74	\$1.88	\$1.19	\$3.32	\$1.79	\$2.63	\$2.36	\$5.03
Indiana.....	10.50	1.98	2.25	1.13	3.09	1.79	2.42	2.14	4.48
Iowa.....	10.51	1.39	1.56	1.10	3.44	1.70	2.09	1.82	3.42
Kansas.....	10.02	1.55	1.62	1.09	2.65	1.46	2.14	1.42	3.99
Michigan.....	12.12	1.95	2.10	1.39	2.85	1.57	2.98	1.70	3.59
Minnesota.....	10.09	1.32	1.45	1.16	3.12	1.61	2.43	1.64	2.85
Missouri.....	11.03	1.67	2.00	1.18	2.81	1.15	2.37	1.60	3.32
Nebraska.....	9.66	1.40	1.52	1.03	3.08	1.61	2.15	1.51	1.83
North Dakota.....	9.84	1.34	-	1.19	3.36	1.49	2.44	1.02	2.00
Ohio.....	12.09	2.06	2.10	1.29	2.43	1.36	1.88	1.36	3.50
South Dakota.....	10.39	1.31	1.44	1.14	3.01	1.58	2.18	1.59	1.92
Wisconsin.....	9.07	1.60	1.80	1.16	2.69	1.67	2.68	1.61	2.67
North Central States.....	10.41	1.53	1.75	1.15	3.12	1.64	2.39	1.74	3.73
Arizona <sup>a</sup> .....	13.50	2.00	-	1.00	5.00	5.00	5.00	2.00	-
California.....	11.83	2.01	2.50	1.92	3.74	2.47	3.67	1.36	-
Colorado.....	10.27	1.65	2.00	1.22	3.10	1.42	2.21	1.27	4.62
Idaho.....	9.32	1.69	2.00	1.50	3.47	1.53	2.28	1.11	1.50
Montana.....	10.68	1.66	1.75	1.79	3.38	1.75	2.50	1.17	1.67
New Mexico <sup>a</sup> .....	14.00	1.50	-	-	-	-	2.50	3.00	-
Oregon.....	7.95	1.69	1.75	1.39	3.86	1.63	2.27	.94	2.17
Utah.....	10.22	1.86	2.25	1.43	3.67	1.60	3.00	1.10	-
Washington.....	7.52	1.74	2.08	1.62	3.70	2.62	2.13	.81	7.50
Wyoming.....	12.22	1.78	-	2.50	-	-	4.00	1.17	1.50
Western States.....	9.17	1.76	2.11	1.59	3.60	1.98	2.44	1.19	3.00
Alabama.....	10.88	2.37	2.00	1.50	2.50	1.12	2.12	1.56	5.30
Arkansas.....	11.44	2.00	2.00	1.56	2.75	1.33	2.00	1.60	3.00
Kentucky.....	11.90	2.40	-	1.60	3.00	1.50	3.00	1.80	6.00
Louisiana.....	13.12	2.50	-	2.00	2.50	1.00	2.00	2.00	5.00
Mississippi.....	10.98	2.25	1.75	1.36	2.78	1.00	5.00	2.00	4.66
Oklahoma.....	9.68	1.94	2.21	1.42	3.33	1.36	2.32	1.80	2.30
Tennessee.....	10.96	1.88	2.00	1.33	-	-	3.00	1.83	2.00
Texas.....	11.61	1.88	2.29	1.23	2.88	1.96	2.33	1.49	3.00
South Central States.....	10.96	2.03	2.19	1.39	2.90	1.56	2.44	1.67	3.66
New Hampshire <sup>a</sup> .....	13.47	-	2.00	-	-	-	-	2.00	-
New Jersey.....	11.19	1.85	-	1.00	-	1.00	-	.75	-
New York.....	9.96	2.44	2.88	2.50	3.10	1.88	2.00	2.14	3.75
Pennsylvania.....	9.59	2.03	2.30	1.44	-	-	2.00	1.25	2.92
Vermont.....	10.72	1.67	-	1.33	3.00	1.00	-	2.00	-
North Atlantic States.....	9.95	2.11	2.50	1.77	2.52	1.58	2.00	1.59	3.20
Florida <sup>a</sup> .....	12.00	2.00	-	1.00	3.00	1.00	-	1.00	-
Georgia.....	12.17	2.58	-	1.00	2.45	1.20	2.00	1.35	4.00
Maryland.....	12.82	2.00	2.00	-	-	-	-	1.25	-
North Carolina.....	10.20	2.25	-	1.00	3.00	-	-	1.50	-
South Carolina.....	10.50	2.50	-	1.00	2.50	3.00	3.00	2.00	-
Virginia.....	9.42	1.50	-	1.00	-	-	-	1.00	-
West Virginia <sup>a</sup> .....	15.00	2.00	-	2.00	5.00	-	-	1.50	-
South Atlantic States.....	11.31	2.16	2.00	1.11	2.91	1.73	2.50	1.31	4.00
United States.....	10.13	1.65	1.87	1.27	3.15	1.68	2.40	1.66	3.66

<sup>a</sup> Only one plant reported.

The average rates charged for smoking cured pork ranged from a high of \$5 per 100 pounds in the one plant reporting from Arizona to a low of \$1 in the plant reporting from Florida. The lower rate is most typical. As shown in table 19, 44.7 percent of the 667 plants reporting curing rates charged 1 cent per pound; while 32.8 percent charged 2 cents and only 5 percent charged 3 cents or more. Rates reported in the survey conducted during January 1941 averaged \$1.39, or 29 cents lower than the rates reported in this survey. This would indicate that the 1 cent rate may be too low. On the other hand, cost studies indicate that with reasonable volume and a control over that volume curing and smoking at 4 cents per pound or \$4 per 100 pounds can be profitable.

Lard rendering in locker plants is, as pointed out in an earlier section, a very popular service among farm and small-town housewives. The average rate for all plants reporting was \$2.40 per 100 pounds. The most common rates were 2 and 3 cents. The data in table 19 show that 33.5 percent of the 520 plants reporting charged 2 cents per pound and 31.5 percent charged 3 cents.

The rates charged for freezing fruits and vegetables which patrons process and package themselves averaged \$1.66 per 100 pounds. Many plants originally froze these products without any charge as a means of encouraging the use of lockers for storing such foods; since, the volume has increased, many plants make a minimum freezing charge. Table 20 indicates that 47.3 percent of the 1,072 plants which reported a charge for freezing fruits and vegetables charged 1 to 1.9 cents per pound and 27.2 percent charged from 2 to 2.9 cents. It should be noted that, where operators reported a charge per quart, it was converted to the poundage figure by using 1 pound per quart.

Only 242 operators reported blanching, packaging, and freezing vegetables. As indicated in a previous section, many operators do not feel they can afford to process and package the small lots of vegetables and fruits which are brought to the plant by many patrons. This no doubt accounts for the small number of plants reporting this service. As shown in table 18, the average charge for these services was 3.66 cents per pound. Table 20 indicates that 26 percent charged from 2 to 2.9 cents, 18 percent from 3 to 3.9 cents, and 21.9 percent charged 6 cents or more.

Patrons can do one or more of the several operations in the home, as: Sorting for maturity and size, cutting corn, snapping beans, washing, blanching and cooling, and packaging. If the patron does all these operations, he must follow the rules carefully and get the packaged products to the plant as soon as possible. Because patrons do not always follow directions for selection and blanching and cooling of products, some operators have provided facilities at the plant where housewives can do the work under the supervision of a plant employee.

Another problem faced by housewives when preparing and packaging fruits and vegetables in the home is the need for prompt delivery to the locker plant. This problem is particularly acute where the housewife



Table 19. - Number of frozen-food locker plants charging specified rates for processing services, 1942

SERVICE AND RATE (CENTS PER POUND)	NORTH CENTRAL STATES	WESTERN STATES	SOUTH CENTRAL STATES	NORTH ATLAN- TIC STATES	SOUTH ATLAN- TIC STATES	UNITED STATES	PERCENT- AGE IN EACH RATE GROUP
Cut, wrap, and freeze:							
Less than 1.....	8	4	-	1	-	11	0.8
1 - 1.4.....	188	33	2	1	1	225	17.5
1.5 - 1.9.....	435	125	22	4	2	588	45.7
2 - 2.4.....	178	124	58	13	7	380	29.5
2.5 - 2.9.....	10	21	11	5	3	50	3.9
3 - 3.4.....	5	6	8	5	3	27	2.1
3.5 or more.....	2	3	1	-	-	6	0.5
Total.....	824	316	102	29	16	1,287	100.0
Cut, wrap, grind, and freeze:							
Less than 1.5.....	21	3	-	-	-	24	8.7
1.5 - 1.9.....	82	7	3	-	-	92	33.3
2 - 2.4.....	86	19	13	5	1	124	44.9
2.5 - 2.9.....	9	3	5	4	-	21	7.6
3 - 3.4.....	4	5	2	-	-	11	4.0
3.5 - 3.9.....	-	-	1	-	-	1	0.4
4 - 4.4.....	-	2	-	-	-	2	0.7
4.5 or more.....	-	-	-	1	-	1	0.4
Total.....	202	39	24	10	1	276	100.0
Grind:							
Less than 1.....	47	8	2	1	-	58	5.2
1 - 1.4.....	545	116	46	7	8	722	64.5
1.5 - 1.9.....	71	31	11	5	-	118	10.5
2 - 2.4.....	79	66	26	4	1	176	15.7
2.5 - 2.9.....	-	6	-	-	-	6	0.5
3 or more.....	7	25	3	5	-	40	3.8
Total.....	749	252	88	22	9	1,120	100.0
Smoking:							
Less than 1.....	3	1	1	-	-	5	0.7
1 - 1.4.....	226	39	28	3	2	298	44.7
1.5 - 1.9.....	58	2	3	-	-	63	9.4
2 - 2.4.....	164	39	14	2	-	219	32.8
2.5 - 2.9.....	11	1	-	1	-	13	2.0
3 - 3.4.....	26	7	1	-	1	35	5.3
3.5 or more.....	20	11	3	-	-	34	5.1
Total.....	508	100	50	6	3	667	100.0
Curing:							
Less than 1.5.....	11	-	1	3	-	15	2.0
1.5 - 1.9.....	20	2	1	-	1	24	3.2
2 - 2.4.....	91	9	20	-	2	122	16.1
2.5 - 2.9.....	31	3	8	1	1	44	5.8
3 - 3.4.....	217	49	32	2	2	302	40.0
3.5 - 3.9.....	17	4	1	-	-	22	2.9
4 - 4.4.....	109	28	8	1	1	147	19.5
4.5 - 4.9.....	9	-	1	-	-	10	1.3
5 - 5.4.....	36	14	5	1	1	57	7.5
5.5 or more.....	6	7	-	-	-	13	1.7
Total.....	547	116	77	8	8	756	100.0
Render lard:							
Less than 1.5.....	46	10	4	-	-	60	11.5
1.5 - 1.9.....	32	3	1	-	-	36	6.9
2 - 2.4.....	131	21	19	2	1	174	33.5
2.5 - 2.9.....	34	3	5	-	-	42	8.1
3 - 3.4.....	131	20	12	-	1	164	31.5
3.5 - 3.9.....	6	-	1	-	-	7	1.4
4 - 4.4.....	23	3	2	-	-	28	5.4
4.5 or more.....	4	4	1	-	-	9	1.7
Total.....	407	64	45	2	2	520	100.0

Table 20. - Freezing (only) fruits and vegetables and processing, packaging, and freezing vegetables, 1942

SERVICE AND RATE CHARGED	NORTH CENTRAL STATES	WESTERN STATES	SOUTH CENTRAL STATES	NORTH ATLANTIC STATES	SOUTH ATLANTIC STATES	TOTAL	PERCENT- AGE OF PLANTS CHARGING SPECIFIED RATES
<i>Cents per lb.<sup>a</sup></i>	<i>Number of plants</i>						<i>Percent</i>
Freezing (only) fruits and vegetables							
Less than 1.....	67	26	1	4	1	99	9.2
1 - 1.9.....	345	77	60	16	9	507	47.3
2 - 2.9.....	245	16	32	16	4	313	29.2
3 - 3.9.....	91	4	12	2	-	109	10.2
4 - 4.9.....	19	1	3	-	-	23	2.1
5 - 5.9.....	16	1	-	-	-	17	1.6
6 or more.....	3	1	-	-	-	4	0.4
Total.....	786	126	108	38	14	1,072	100.0
Processing, packaging, and freezing vegetables.							
Less than 1.....	-	1	-	1	-	2	0.8
1 - 1.9.....	30	4	5	1	-	40	16.5
2 - 2.9.....	46	4	13	1	-	64	26.5
3 - 3.9.....	35	1	7	1	-	44	18.2
4 - 4.9.....	12	-	2	1	1	16	6.6
5 - 5.9.....	17	-	6	-	-	23	9.5
6 or more.....	40	4	8	1	-	53	21.9
Total.....	180	14	41	6	1	242	100.0

1,072 plants reported - freezing (only) fruits and vegetables (54.9 percent)

882 plants reported - no freezing (only) fruits and vegetables (45.1 percent)

242 plants reported - processing, packaging, and freezing vegetables (12.4 percent)

1,713 plants reported - no processing, packaging, and freezing vegetables  
(87.6 percent)

<sup>a</sup>In tabulating the schedules 1 quart equaled 1 pound.

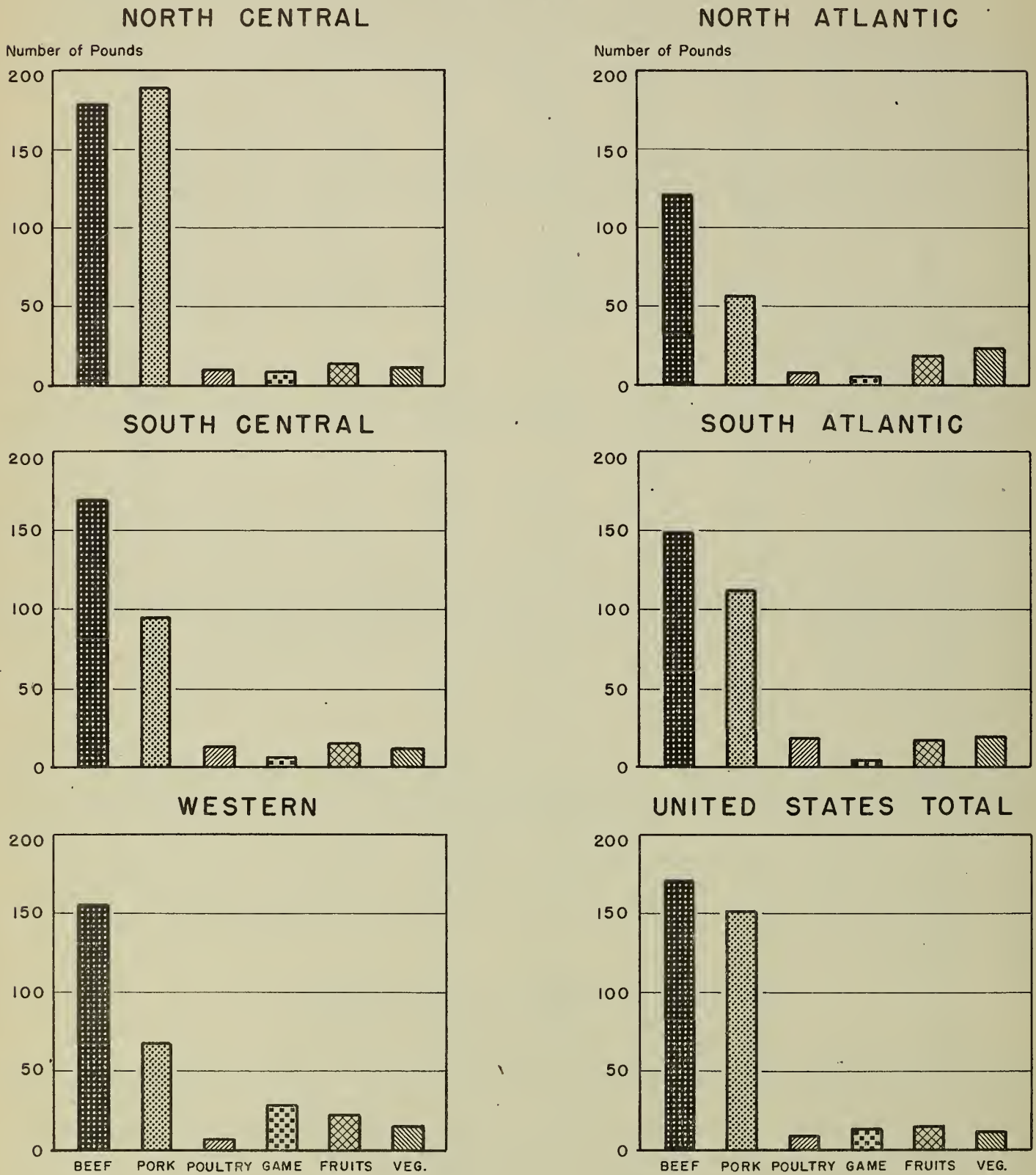
is packaging small surpluses each morning from the family garden. Some operators feel that a small frozen food unit in the home, which could be used to freeze 5 or 10 pounds of product each day, would encourage increased use of the locker for the storage of frozen fruits and vegetables. The housewife could then accumulate a week's freezing and deliver it to the plant when she went to replenish her stock of other foods from the locker.

#### POUNDS OF PRODUCTS PROCESSED AND STORED PER LOCKER RENTED

The data in table 21 and figure 14 is probably the most significant information reported in the survey. Only those plants furnishing reasonably complete data on poundage handled were included in this analysis. However, it must be kept in mind that the break-down between commodities represents operators' estimates in most cases. It should also be kept in mind that these averages are based on the number of lockers rented as of the close of the year and that the pounds per locker rented might be higher if the number of lockers rented were based on the average rented throughout the year.



FIGURE 14  
AVERAGE NUMBER OF POUNDS CHILLED, CUT,  
WRAPPED OR FROZEN PER LOCKER RENTED  
BY REGIONS, 1942



UNITED STATES DEPARTMENT OF AGRICULTURE  
FARM CREDIT ADMINISTRATION

COOPERATIVE RESEARCH AND SERVICE DIVISION 016100-14

Beef and pork are the principal foods processed by the locker plants reporting and the pounds of beef handled exceeded the pork except in the North Central States.

Table 21. - Average number of pounds chilled, cut, wrapped, or frozen per locker rented, by States, 1942

STATE AND REGION	BEEF	PORK	POULTRY	GAME	FRUITS	VEGE- TABLES
<b>North Central States:</b>						
Illinois.....	201	180	10	4	18	13
Indiana.....	214	126	10	3	20	23
Iowa.....	190	253	8	9	17	10
Kansas.....	162	89	13	5	13	12
Michigan.....	144	133	10	11	23	16
Minnesota.....	202	266	10	10	10	7
Missouri.....	135	104	13	6	14	14
Nebraska.....	162	149	10	5	10	22
North Dakota.....	208	209	12	15	11	16
Ohio.....	179	105	8	4	22	15
South Dakota.....	190	314	10	28	11	8
Wisconsin.....	142	217	11	9	19	8
Average.....	181	191	10	9	16	13
Total plants reporting.....	(901)	(882)	(778)	(360)	(664)	(517)
<b>Western States:</b>						
Arizona.....	172	77	25	6	18	6
California.....	226	66	7	16	8	12
Colorado.....	205	153	7	64	10	12
Idaho.....	149	82	7	35	11	11
Montana.....	138	97	6	79	13	13
New Mexico.....	598	-	20	17	7	7
Oregon.....	138	55	4	14	38	21
Utah.....	103	104	8	74	14	17
Washington.....	143	53	7	18	30	24
Wyoming.....	125	50	6	120	12	11
Average.....	156	70	7	30	22	17
Total plants reporting.....	(282)	(268)	(206)	(231)	(158)	(139)
<b>South Central States:</b>						
Alabama.....	272	538	16	6	13	13
Arkansas.....	97	74	10	10	10	14
Kentucky.....	149	111	9	-	27	12
Louisiana.....	274	189	18	6	8	8
Mississippi.....	189	245	22	6	29	37
Oklahoma.....	133	84	15	5	16	7
Tennessee.....	142	45	19	2	16	27
Texas.....	197	156	14	9	14	9
Average.....	169	147	15	7	16	14
Total plants reporting.....	(100)	(101)	(95)	(49)	(77)	(72)
<b>North Atlantic States:</b>						
New Jersey.....	125	110	20	4	12	6
New York.....	112	46	8	8	17	13
Pennsylvania.....	126	56	11	7	22	35
Vermont.....	216	38	5	-	11	-
Average.....	122	56	10	7	20	26
Total plants reporting.....	(27)	(26)	(25)	(18)	(21)	(19)
<b>South Atlantic States:</b>						
Florida.....	71	79	12	-	4	-
Georgia.....	5	126	25	14	24	34
Maryland.....	81	43	16	-	27	27
North Carolina.....	152	167	12	4	6	12
South Carolina.....	165	246	24	5	27	17
Virginia.....	144	70	17	-	19	38
West Virginia.....	235	47	23	2	24	12
Average.....	148	114	20	5	19	21
Total plants reporting.....	(14)	(13)	(13)	(5)	(12)	(10)
<b>UNITED STATES AVERAGE.....</b>						
Total plants reporting.....	171 (1,324)	153 (1,290)	10 (1,117)	16 (663)	18 (932)	14 (757)



Other factors to be kept in mind are:

1. That fruits and vegetables are often put in the locker without going through the plant records; hence, the actual poundage of these products is probably higher than the average of 18 and 14 pounds shown in table 21.

2. The pork chilled includes the pork that went through the curing department; hence, the 46 pounds of pork cured per locker (table 22) is not in addition to the 153 pounds chilled and cut.

Some of the more interesting and significant facts revealed in this table are:

1. Beef processing exceeds pork. The national per capita consumption of pork is normally 15 percent greater than that of beef. This greater consumption of beef by locker plant patrons points to the possible effect of an expansion of meat freezing on beef consumption and hence on production.

2. The rather wide variations between States in the pounds of product processed per locker. In the North Central States the 32 plants reporting from North Dakota processed an average of 208 pounds of beef per locker; whereas, the 47 plants reporting from Missouri processed only 135 pounds. The 106 plants reporting from Minnesota processed an average of 266 pounds of pork; whereas, the 61 plants reporting from Kansas processed only 89 pounds of pork. These variations are the result of two factors; namely, production and consumer demand or desires. To a certain extent they may be affected by the type of service furnished by the plant. Thus, the plant which renders lard and cures pork may get more pork per patron than the plant which does not furnish these services.

As might be expected, the plants in the North Central States processed more beef and pork than the plants in other areas. However, this is the only region where pork processing exceeded beef. The spread between these two types of meat was particularly pronounced in the plants reporting from the 10 Western States.

Poultry poundage per locker was highest in the South Atlantic States and lowest in the Western States. However, within the western group, Arizona and New Mexico reported an average of 25 and 20 pounds of poultry processed per locker, respectively, ranking along with the Georgia and South Carolina plants, which handled 25 and 24 pounds, respectively.

Game processing was highest in the Wyoming plants where they processed the extremely high average of 120 pounds per locker rented. Montana ranks next with 79 pounds and Utah third with 74 pounds. This indicates the extent to which lockers are used in this area for the preservation of big game such as antelope, elk, and deer. To the extent that these meats are often wasted, this conservation represents a definite contribution to the war food program.

Fruits and vegetables frozen and stored for patrons is not so large as was expected. However, as mentioned earlier, the operators' reports probably do not include many pounds of these products which move into lockers without any record being made at the plant.

Table 22. - Pounds of pork cured, fruits and vegetables frozen for sale, and commercial products sold per locker rented in 1942

STATE AND REGION	PORK CURED	FROZEN FOR SALE		COMMERCIAL PACK SOLD		FISH AND SEA FOOD	PACK- ERS' BEEF	PACK- ERS' PORK
		FRUITS	VEGE- TABLES	FRUITS	VEGE- TABLES			
North Central States:								
Illinois.....	56	2	2	2	2	6	33	11
Indiana.....	45	3	15	6	4	6	25	8
Iowa.....	33	6	1	3	1	5	27	9
Kansas.....	39	1	0	4	3	7	25	7
Michigan.....	31	13	4	7	5	3	48	8
Minnesota.....	30	5	8	3	4	9	32	9
Missouri.....	22	2	2	2	3	4	31	16
Nebraska.....	73	6	10	3	1	11	16	12
North Dakota.....	27	-	-	2	3	8	47	23
Ohio.....	53	2	1	2	3	3	34	7
South Dakota.....	44	4	3	1	2	10	49	12
Wisconsin.....	32	6	2	5	2	6	31	17
Average.....	39	5	4	4	3	7	31	10
Total plants reporting.	(439)	(72)	(33)	(154)	(128)	(304)	(417)	(194)
Western States:								
Arizona.....	12	-	-	-	-	-	12	-
California.....	20	27	20	12	14	4	65	11
Colorado.....	61	(a)	(a)	1	1	3	39	35
Idaho.....	39	(a)	9	9	7	7	20	6
Montana.....	44	(a)	3	3	3	3	27	5
New Mexico.....	-	-	-	-	-	-	-	-
Oregon.....	47	1	1	5	6	12	28	8
Utah.....	27	-	-	-	-	-	22	11
Washington.....	11	2	7	1	2	9	40	11
Wyoming.....	-	-	-	15	5	25	60	18
Average.....	29	4	8	3	4	7	42	13
Total plants reporting.	(92)	(17)	(9)	(37)	(33)	(37)	(108)	(73)
South Central States:								
Alabama.....	440	3	1	-	-	60	14	-
Arkansas.....	84	3	3	4	3	4	22	16
Kentucky.....	22	22	4	30	8	-	29	4
Louisiana.....	126	-	-	-	-	-	147	-
Mississippi.....	194	10	12	9	5	23	27	19
Oklahoma.....	50	4	1	6	7	10	37	9
Tennessee.....	-	-	-	-	-	-	-	-
Texas.....	118	4	8	2	2	7	21	7
Average.....	131	7	5	5	4	10	30	9
Total plants reporting.	(58)	(20)	(12)	(25)	(19)	(29)	(44)	(23)
North Atlantic States:								
New Jersey.....	28	-	-	-	-	-	-	-
New York.....	1	1	7	8	9	6	42	21
Pennsylvania.....	-	-	-	6	9	2	37	18
Vermont.....	11	8	-	-	-	-	-	-
Average.....	12	2	7	7	9	4	39	20
Total plants reporting.	(3)	(3)	(2)	(14)	(14)	(10)	(16)	(12)
South Atlantic States:								
Florida.....	256	-	-	-	-	-	-	-
Georgia.....	149	-	-	-	-	6	-	-
Maryland.....	-	-	-	-	-	-	4	-
North Carolina.....	191	13	-	9	-	-	17	21
South Carolina.....	-	-	-	12	20	6	-	-
Virginia.....	6	-	6	9	6	3	62	6
West Virginia.....	2	-	-	23	23	23	33	24
Average.....	113	13	6	15	19	12	22	20
Total plants reporting.	(7)	(1)	(1)	(4)	(3)	(4)	(4)	(3)
UNITED STATES AVERAGE..								
Total plants reporting.	46 (599)	5 (113)	5 (57)	4 (234)	4 (197)	7 (384)	34 (589)	11 (305)

<sup>a</sup> Less than 1 pound.



S. DEPARTMENT OF AGRICULTURE

FARM CREDIT ADMINISTRATION

KANSAS CITY 8, MO.

OFFICIAL BUSINESS

FORM P22-6/45-1,278

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